

Falconidæ.

Polyboroides typicus.
Elanus cæruleus.

Ardeidæ.

Butorides atricapillus.
Ardetta sturmi.

Ciconiidæ.

Dissoura microscelis.

Charadriidæ.

Charadrius orbesi.
Pluvianus ægyptius.
Stephanibyx inornatus.
Arenaria interpres.

Scolopacidæ.

Numenius arquatus.
N. phæopus.
Himantopus himantopus.
Totanus littoreus.
Tringoides hypoleucus.
Calidris arenaria.

Laridæ.

Sterna maxima.
S. cantiaca.

Rallidæ.

Porphyrio alleni.

Columbidæ.

Vinago calva.

XI.—*An Ornithological Expedition to the Eastern Canary Islands.*—Part II. By DAVID A. BANNERMAN, B.A., M.B.O.U., F.R.G.S.*

ANYONE studying the Avifauna of the Canary Archipelago is doubtless at once struck by the immense number of geographical or insular forms which have been described from these islands. Many well-known authorities are inclined, without taking the trouble to investigate the matter for themselves, to ridicule the idea that so many subspecies can possibly occur there. I have therefore been exceedingly careful to examine closely a series of every bird on which there might rest the slightest doubt as to whether it merits subspecific rank. In addition to this I have had the very great advantage of studying the birds *in their native islands* during the many delightful expeditions which I have made in the last few years. The result of my investigations shows that a very large majority of the subspecies described must unquestionably be "kept up." Naturally, in these island-forms many different grades (if such a word can be used of subspecies) occur side by side. Take, for instance, the Slender-billed Barn Owl (*Tyto flammea*

* Continued from p. 90.

gracilirostris) and the Fuerteventuran Bustard (*Chlamydoti undulata fuerteventuræ*), and compare their claims to subspecific rank with those of the Sardinian Warbler (*Sylvia melanocephala leucogastra*) and the Canary Island Shrike (*Lanius excubitor kænigi*). It is obvious that the first two mentioned have become much further removed from the parent form than the last two, in which very slight modification has taken place. Whether the Bustard and the Slender-billed Barn Owl have become more highly characterised in consequence of longer residence in the Canary Islands than the Shrike and Warbler, it is impossible to say for certain. For we have no means of ascertaining the exact period when any of these birds first became inhabitants of the group. In considering the elements which constitute such an important part in the forming of a well-defined insular race, we have, in the Canary Archipelago, to consider the geographical position of the group in relation to Africa, the climatic conditions of the various islands, their altitude, and particularly the physical environment with which the birds are surrounded. As *time* is the main cause of any species which is isolated from the typical form becoming modified, it might be supposed, and possibly in some cases correctly, that the first birds which arrived in the Canary Islands are those which show the greatest differentiation at the present day, *e. g.*, that the Slender-billed Barn Owl and the Fuerteventuran Bustard became isolated in the Canary Islands many years in advance of the Sardinian Warbler and the Canary Island Shrike. In considering this problem we must bear in mind that the several elements mentioned above undoubtedly act very differently on the various species which now inhabit the group. Another important factor to be reckoned with is the conditions under which the bird lived prior to its having gained a foothold in one or more of the islands. If the conditions are much the same we shall probably find that a very slight change, if any, has taken place in the bird. For instance, the Cream-coloured Courser (*Cursorius g. gallicus*) and the Sandgrouse (*Pterocles arenarius*) which inhabit the islands of Fuerteventura and Lanzarote are obviously immigrants from the neighbouring African coast, and finding, in

these islands, a similar environment to that of their native land, they have settled down and remained quite unchanged from the typical race.

Then take the case of the Pale Titmouse (*Parus cæruleus degener*); this has become greatly modified on account of the unusual surroundings amongst which it now lives and, as in the case of many species inhabiting the waterless desert islands of Fuerteventura and Lanzarote, it is both smaller in size and paler in colour than allied forms living on the well-watered and mountainous western islands.

A particularly interesting case is that of the Barn Owls, of which there are two forms in the Archipelago. The subspecies already mentioned, *Tyto flammea gracilirostris*, is confined to the eastern desert group, where it lives in the holes of cliffs and ekes out a precarious existence. Turning to the western group of islands, we find that they are inhabited by a Barn Owl living under normal conditions which cannot be separated from dark examples of typical *Tyto flammea flammea*.

Provided that sufficient characters meriting subspecific rank are shown to be constant, I have accepted the names proposed, but undoubtedly several new forms have been recently described which can never be regarded as worthy of separation. Size alone is often a very dangerous character upon which to make a new subspecies; but the physical characteristics of the Canary Archipelago, especially as regards the eastern islands, tend to produce geographical races which have become modified in colour as well as in size. In the group with which this paper deals, Fuerteventura, Lanzarote, Graciosa, and the four outlying islets, a very distinct avifauna is to be found. This fauna, as might be expected, is allied to that of northern Africa, while that of the western islands is almost entirely European in character.

In the first part of my paper I have attempted to describe the physical peculiarities of the country through which I passed on my journey. Anyone who is acquainted with the western islands will not, therefore, be surprised at the number of forms peculiar to the eastern group *alone*.

In many cases, distinct, but closely allied geographical races are found to occur, the one in the eastern, the other in the western group.

Of these we may mention the following, arranged in tabular form :—

Subspecies peculiar to the Eastern Canary Islands.	Closely allied form inhabiting the Western Canary Islands.
1. <i>Acanthis cannabina harterti</i> .	1. <i>Acanthis cannabina nana</i> .
2. <i>Culandrella minor polatzeki</i> . (Also found in Gran Canaria, although this latter form has been separated on what I consider to be insufficient grounds.)	2. <i>Culandrella minor rufescens</i> .
3. <i>Parus cæruleus degener</i> .	3. <i>Parus cæruleus teneriffæ</i> . Tene- riffe; Gran Canaria; Gomera. <i>Parus cæruleus ombriosus</i> . Hierro. <i>Parus cæruleus palmæ</i> . Palma.
4. <i>Phylloscopus collybita exsul</i> .	4. <i>Phylloscopus collybita canari- ensis</i> .
5. <i>Tyto flammea gracilirostris</i> .	5. <i>Tyto flammea flammea</i> .
6. <i>Tinnunculus tinnunculus dactotæ</i> .	6. <i>Tinnunculus tinnunculus canari- ensis</i> .
7. <i>Ædicnemus ædicnemus in- sularum</i> .	7. <i>Ædicnemus ædicnemus dis- tinctus</i> .

On comparing the eastern with the western subspecies, it will be seen that those from the eastern group are, with one exception—*Tyto flammea gracilirostris*,—lighter in colour than the birds from the western islands. This is easily comprehended when we realise that the eastern islands are, as Canon Tristram correctly expressed it, “biologically simply western outliers of the Great Sahara,” without any of the rich vegetation which clothes the mountainous western islands. The birds, therefore, which inhabit the eastern group have with the action of time learnt to harmonise more exactly with the desert surroundings amongst which they are placed.

Several Families are confined almost if not entirely to the eastern group, and are not represented by any species in

any of the western islands with the exception of Gran Canaria. The south-east coast of this latter island to a large degree resembles Fuerteventura in character, and both Coursers (*C. g. gallicus*) and Trumpeter Bullfinches (*E. g. amantum*)* are found there: Sandgrouse (*P. arenarius*) have also been seen in this district in former years.

The following species and subspecies represent the Families alluded to above:—

- Erythrospiza githaginea amantum.*
- Saxicola dacotiæ dacotiæ.*
- Saxicola dacotiæ murielæ.*
- Pterocles arenarius.*
- Chlamydotis undulata fuerteventuræ.*
- Cursorius gallicus gallicus.*
- Hæmatopus niger meadewaldi.*

Only one family is represented by two closely allied forms which inhabit different islands in the eastern group. The Chats (*Saxicola*) being represented in Fuerteventura by *Saxicola d. dacotiæ* and in Montaña Clara and Allegranza by *Saxicola d. murielæ*.

Other species and subspecies found in the eastern group which have not yet been mentioned are either peculiar to the Canary Archipelago or to the islands of the north Atlantic. Of these:—

1. *Carduelis carduelis parva,*
2. *Anthus bertheloti bertheloti,*
3. *Lanius excubitor kænigi,*
4. *Sylvia melanocephala leucogaster,*
5. *Sylvia conspicillata bella,*
6. *Micropus unicolor unicolor,*
7. *Buteo buteo insularum,*
8. *Puffinus kuhli flavirostris* }
9. *Puffinus assimilis baroli* } Madeira and Canary Seas,
10. *Columba livia canariensis,*
11. *Caccabis petrosa kænigi,*

are all breeding birds in the eastern group of islands with the possible exception of *M. u. unicolor*, which has not yet been definitely proved to nest there.

* This bird is also occasionally met with in the desert parts of Tenerife.

The only breeding birds resident throughout the year which are not indigenous to the eastern islands, and which I do not consider separable from either (A) the typical species, or (B) the form inhabiting the opposite mainland of Africa, are the following:—

- *1. *Corvus corax tingitanus.*
 - 2. *Passer hispaniolensis hispaniolensis.*
 - *3. *Upupa epops epops.*
 - 4. *Falco peregrinus pelegrinoides.*
 - 5. *Pandion haliaëtus haliaëtus.*
 - 6. *Neophron percnopterus.*
 - 7. *Pterocles arenarius.*
 - 8. *Cursorius gallicus gallicus.*
 - 9. *Ægialitis alexandrinus alexandrinus.*
 - 10. *Larus cachinnans.*
- and possibly
- 11. *Coturnix coturnix africana.*

Even in this short list two species marked with an asterisk (*) have been described as geographical races and given new subspecific titles, which for reasons hereafter explained I am unable to recognise. Partial migration of several of the above species undoubtedly takes place.

Besides the Petrels there are a few birds which visit the eastern islands to breed and having done so again take their departure, *i. e.* the Turtle Dove (*Streptopelia t. turtur*), the Corn Bunting (*Emberiza c. calandra*), and the migratory Quail (*Coturnix c. coturnix*). It is also possible, but confirmation of this is necessary, that the House Martin (*Delichon u. urbica*) remains in small numbers to breed in the little island of Allegranza and, at the same time, in certain districts the Pale Swift (*Micropus murinus brehmorum*) undoubtedly remains to breed. The remaining species and subspecies which I met with in the eastern Canary Islands all belong to regular or casual visitors to the group which do not breed in the eastern islands. The majority, it will be seen, are Waders which touch at the islands during the spring and autumn migrations. It is obviously impossible without long residence in an island to determine to what extent the migration of any particular species takes place. We can

only piece together the evidence supplied by naturalists whose combined observations stretch over the different months of the year. In this way we can arrive at fairly correct conclusions with regard to the more *obvious* migratory movements which take place; there is, however, a great deal to be learnt as to the extent to which migration occurs actually amongst the islands; the case of the Corn Bunting (*Emberiza calandra calandra*) alone supplies source for considerable investigation.

It is said to be very unusual for birds to strike the lanterns in the various lighthouses of the group, so that one of the surest sources of gaining information is thereby closed to us. We may infer, however, from the very large number of indigenous forms inhabiting the Canary Islands, that regular migration of Passerine birds is very limited. Von Thanner records that the lighthouse keeper on Allegranza told him that every strong wind coming from the neighbouring coast of Africa, and quite independent of the time of year and the season of migration, brings numerous small and large birds. A thorough survey of the Ornis inhabiting the African coast-line between Cape Ghir and Cape Bojador is necessary before we can discuss with any confidence the relation which it bears to that of the Canary Archipelago. Unfortunately, this part of the African mainland is inhabited by lawless nomad tribes, who have on many occasions shown themselves to be extremely hostile to strangers. The Spanish fishermen from the islands, whose trade takes them along this coast, hold the tribesmen in the greatest dread, and seldom land there unless absolutely compelled to do so.

In the following list I have given the references to each particular species as it was mentioned in the first part of my account of the Expedition, which appeared in the January number of 'The Ibis,' 1914, pp. 38-90.

Reference to this paper is quoted in the following pages as "Bannerman, Part I."

My special thanks are due to the authorities of the Tring Museum for the unfailing courtesy with which they have always met my request for the loan of specimens. I should

like also to acknowledge the help which I have received from Mr. Tom Iredale, whose exceptional knowledge of scientific literature has often enabled me to determine obscure references which would otherwise have been passed over.

I regret that in Part I. of my paper I omitted to acknowledge the debt which I owed to Mr. Claude Grant, who kindly assisted me in selecting the commissariat of the expedition.

The total results of the collections made, including specimens from Gran Canaria, comprise 412 bird-skins (including 3 new subspecies), 224 eggs, and a few skeletons of the more interesting forms; two hedgehogs of a new species, ten bats, and one rabbit. Besides these, large collections of entomological, botanical, and geological specimens were procured.

Corvus corax tingitanus. Moroccan Raven.

Corvus corax tingitanus Irby; Bannerman, Part I. pp. 49, 58, 61, 75, 85, 88.

Corvus corax canariensis Hart. & Klein.

In my recent paper on the birds of Gran Canaria ('Ibis,' 1912, p. 625), I discussed the possibility of upholding *C. c. canariensis* as distinct from the form inhabiting the neighbouring African coast. Eventually I came to the conclusion that specimens from Gran Canaria must be united with *C. c. tingitanus* Irby.

I have lately had occasion to re-examine the material from the Canary Islands in the British Museum; this has only served to strengthen the views which I originally expressed. Examples from Tenerife, Gran Canaria, and Fuerteventura cannot be separated from the Moroccan Raven. The type of *C. c. tingitanus* Irby, in the National Collection, possesses an *exceptionally* short and thick bill, while certain other examples from Morocco and Algeria have longer, weaker, and straighter beaks than in the type-specimen. I have already drawn attention to the Ravens from Gran Canaria which have the bill, if anything, heavier

than in examples of *C. c. tingitanus*. The shape, build, and curve of the bill seem to me to be subject to individual variation in both *C. c. tingitanus* and so-called *C. c. canariensis*. I can see no difference in the shape of the heckles, although, as Dr. Hartert affirms, they may usually be longer.

Dr. le Roi, of Bonn, who has examined a large series of Ravens from the islands, wrote to me last year that he had come to the same conclusion as I have and had united the birds of the Canary Islands with *C. c. tingitanus*.

Ravens were met with sparingly in Fuerteventura but were more common in Lanzarote, where a dozen at a time were seen above "El Risco." They were also present in Montaña Clara and Allegranza.

A single example was obtained in Fuerteventura.

Bill and feet black, iris very dark.

Carduelis carduelis parva. Least Goldfinch.

Carduelis carduelis parva (Tsch.); Bannerman, Part I. p. 48.

It will be noticed that in this Goldfinch the ends of the primaries and secondaries are often "notched"—a peculiarity which is caused by the white tips being worn away to the exact pattern of the original white markings. I have never noticed this in *Carduelis c. carduelis*.

All the examples which I have examined from Fuerteventura appear to have abnormally long bills*.

The Least Goldfinch was met with only in Fuerte-

* [It is interesting to note that the Goldfinch introduced into Bermuda, recently described as *C. c. bermudiana* Kennedy, has, as is usually the case when a bird is imported into a tropical mountainous island, become much darker in colouring, as well as smaller in size. Doubtless in another century the Goldfinch, which has only recently been introduced into the desert island of Fuerteventura, will have become differentiated from the form found in the mountainous western islands of the Canary group. This bird we shall expect to become lighter in colouring and very possibly even smaller in size than is at present the case; probably the bill will become stronger through having to adapt itself to the harder conditions of life in a desert island. It will be instructive to note how soon the action of environment will make itself felt on this particular species.]

ventura, where it has been introduced from the western islands. It is fairly plentiful in the Barranco de la Peña. The examples obtained were all from one locality in Fuerteventura.

Bill flesh-colour, tip dark; iris dark hazel; feet flesh-colour. The testes of the males were large.

Acanthis cannabina harterti. Hartert's Brown Linnet.

Acanthis cannabina harterti Bannerman, Bull. B. O. C. xxxiii. 1913, pp. 38, 39; Bannerman, Part I. pp. 44, 48, 52, 55, 56, 57, 59, 60, 65, 85.

This new subspecies, which I have recently described, is confined to the eastern islands of the Canary Group. It is easily distinguished from the form found in the western islands by the following characters:—

1. The upper parts are several shades lighter and lack the particularly rich colouring of the western island form.

2. The sides and flanks lack the deep chestnut markings and are less boldly streaked with light brown.

3. The white area on the belly is more extended.

Hartert's Brown Linnet appears to be thinly distributed in Fuerteventura, while in Lanzarote it is practically confined to the Valley of Haria, where it is extremely plentiful. A single bird was seen on Graciosa, but in Montaña Clara it was not observed. It was again found in Allegranza, where, however, it was scarce and very shy.

The series collected was chiefly remarkable for the brilliant crimson breasts of the males, especially in the case of those from Lanzarote, although this is not a distinguishing character of the subspecies.

A large series was obtained from Fuerteventura, Lanzarote, and Allegranza.

Bill light horn-colour; iris dark hazel; feet brown.

The following clutches of eggs were taken:—

- (a) 4 eggs, La Peña, Fuerteventura, 11. v. 13.
- (b) 3 eggs, Antigua, Fuerteventura, 15. v. 13. (In an advanced stage of incubation.)
- (c) 2 eggs, Yaiza, Lanzarote, 20. v. 13.
- (d) 4 eggs, Haria, Lanzarote, 24. v. 13.

The eggs obtained showed little variation: ground-colour pale bluish green, thickly spotted, speckled and occasionally pencilled at the thick end with purplish brown and underlying markings of lilac; often a distinct zone is noticeable round the broader end, while the narrow end is sometimes almost unspotted.

Measurements: maximum 19×13.5 mm.; minimum 15.5×13 mm.

Erythrospiza githaginea amantum. Canarian Trumpeter Bullfinch.

Erythrospiza githaginea amantum Hart.; Bannerman, Part I. pp. 43, 50, 52, 54, 56, 65, 85, 89.

A small but beautiful series of this Desert Bullfinch was collected, the adults being in particularly fine plumage, but young birds in various stages were also obtained. As no account of the juvenile plumage of *E. g. amantum* appears to have been published, I append the following description of specimens in my collection depicting two of the stages through which the young birds pass.

The general colour of the fully-fledged young is throughout pale ochraceous brown, brighter on the rump, and becoming paler on the abdomen. The primaries are dark sepia-brown margined with buff, the secondaries being broadly edged, on the outer web, with the same colour. The tail is dark sepia-brown edged with ochraceous buff, the two central rectrices being more deeply margined on both webs than are the outer rectrices. Immature birds entirely lack the rose colour of the adults. The bill is horn-colour and the legs pinkish buff. In very young birds which have not left the nest, we find that the plumage is very different, being of a pinkish-fawn colour and *entirely lacking the sandy tinge* which is gained after the young have commenced to fly. The bill, moreover, is very light yellowish horn, which becomes darker as the bird advances in age.

The Trumpeter Bullfinch is an exceedingly common resident in the most arid parts of Fuerteventura, but is much less abundant in Lanzarote. On Graciosa two small

flocks were seen, while on Allegranza only a single flock was noted.

All the adult males were in very bright plumage and had not yet finished breeding, although many birds of the year were seen in company with the adults.

Specimens were obtained from Fuerteventura, Lanzarote, Graciosa, and Allegranza.

Bill coral-red; iris dark hazel; legs and feet pinkish buff.

Two nests were found on the same date:—

(a) containing 4 young, Antigua, Fuerteventura, 15. v. 13.

(b) containing 5 eggs, " " "

besides which a large series of 24 eggs was obtained chiefly from Fuerteventura.

Ground-colour pale blue, usually marked sparingly with dark purplish-black and reddish-brown spots and dots. The markings are mostly confined to the larger end. Several of the eggs in this series are charily marked with minute isolated dots of purplish black, while another, in contrast, is boldly spotted round the thick end.

Measurements: maximum 20.5×15 mm., minimum 19×15 mm.

One egg in the above series is particularly narrow, measuring 19.5×14 mm.

Passer hispaniolensis hispaniolensis. Spanish Sparrow.

Passer hispaniolensis hispaniolensis (Temm.); Bannerman, Part I. pp. 43, 49, 50, 54, 56, 59, 60.

In the low-lying cultivated districts, wherever there are palm-trees, these noisy Sparrows swarm. They also resort to the wells, in the walls of which they are said to roost in quantities. Their nests were invariably placed in the palm-trees, where they are most difficult to reach. Their habit of nesting in the same tree as the Kestrel Hawk has already been noted elsewhere.

Specimens were obtained from Fuerteventura and Lanzarote in fine breeding-plumage. None were found in the smaller islands.

Bill black; iris dark hazel; feet deep buff.

Emberiza calandra calandra. Corn Bunting.

Emberiza calandra calandra Linn.; Bannerman, Part I. p. 59.

Emberiza calandra thanneri Tschusi, Orn. Jahrb. 1903, p. 162.

In 'The Ibis' for 1912, p. 611, I discussed at some length the form or forms of *Emberiza* found in the island of Gran Canaria. At first I inclined to the idea that there were two distinct forms inhabiting the island—a resident mountain race and a coastal migratory race, the chief difference of which was in size. Finally, however, I came to the conclusion, with the aid of Dr. Hartert, who kindly examined the series with me, that the large birds were males and the small birds were females. This did not quite explain the fact that the small birds were invariably much lighter in colouring and had the breast-markings much less pronounced, for there is no constant difference in the plumage of the two sexes, although there certainly is in size.

I should now like to correct a statement which I made in my previous paper. On page 611 (footnote) I stated that I could not vouch for the sexes of specimens *h*, *k*, *l*, and *u*, as I had not dissected them myself. At the time of writing this I was quite unaware that the sex of these four specimens had been personally ascertained by Mr. Pycraft, who examined the sexual organs under a microscope.

Dr. Hartert's supposition that the sex of these birds had been wrongly determined cannot, therefore, be allowed, although at the time it certainly appeared probable.

In the spring of this year (1913), while in Gran Canaria, I collected an additional series of Corn Buntings and found that all the *breeding* birds in the mountain district of Firgas (1625 ft.) belonged to the large dark race. These birds all had eggs at this time, April 22nd to May 4th, and *not a single small light coloured bird was to be seen in the island.*

One example of the large dark form was obtained in Lanzarote, and through the kindness of Miss Jackson I procured a small series from Tenerife—the type-locality of

E. c. thanneri—these birds are similar to those shot at Firgas in Gran Canaria.

Based on a further examination of this species, with the additional material available, I have come to the following conclusions :—

1. That the large dark-breasted birds cannot (at present) be distinguished from *Emberiza calandra calandra*. In this opinion I am supported by Dr. Sassi (*vide* Orn. Jahrb. 1908, p. 34).

2. That these are the resident breeding birds which, with one exception, were all found in the mountain districts.

3. That the wing-measurements of these larger birds vary in males from 94–102 mm., and in females from 92 mm.

4. That the light-breasted small birds are confined to the low coastal regions (likewise only one exception known).

5. That the wing-measurements of this small race vary in males from 87–90 mm., and in females from 85–87 mm.

6. That the small light race has never been found breeding.

The evidence at present available points to this small race being winter migrants, but from where is yet to be proved. If it could be shown that these birds are migrants from a neighbouring island or part of the African coast, I should not have the slightest hesitation in giving to them a new sub-specific name. Until their breeding-place is discovered such a course can only lead to confusion, but it remains an undisputed fact that the birds from the coastal region of Gran Canaria can be distinguished *in life* as well as in the skin from the form inhabiting the mountains.

During the expedition in the eastern islands we only met with the Corn Bunting on one occasion, as we were crossing the high plateau of the Monte Famara range in Lanzarote. A single bird was obtained here which was actually the only one seen throughout the trip. I have not been able to discover at what season the Corn Bunting arrives in and leaves the eastern islands. Polatzek writes that "it is a frequent breeding bird on all the islands; resident only on the western isles; a bird of passage on the eastern." He

goes on to say that "on the eastern islands, especially as regards Lanzarote, they often appear near the wells by the houses, and they collect in flights on the stubble fields after harvest and in the old straw, finally leaving both islands and returning again in the spring."

Polatzek collected five nests in Fuerteventura, and took clutches of eggs on the 20th of March and the 7th of April. I myself received a clutch from Fuerteventura in the middle of June which contained well-developed embryos. From these dates it would appear that the Corn Bunting usually arrives in Fuerteventura and Lanzarote towards the end of February and remains to breed in these islands, departing again after the summer harvest.

If this is the case, then it is very remarkable that I did not come across the bird in my journey which, as can be seen by referring to the map (Part I. pl. II.), covered the greater part of both the large islands. I remained in the eastern group from May the 5th until June the 17th and kept a sharp look out for this particular species. Whether the exceptionally cold and stormy weather which was experienced at this time had anything to do with the non-arrival of the Corn Buntings, it is difficult to surmise, but it is certain that for some reason they had not kept to their usual date of arrival in the eastern islands.

One bird was obtained in Lanzarote.

Bill light horn; iris dark hazel; legs buff, darker on the feet.

A clutch of eggs, said to have been taken at Tuineje (Fuerteventura), was sent to me on my return to Gran Canaria. I received these eggs, which contained well-developed embryos, in the middle of June. The clutch consisted of four eggs remarkably handsomely marked.

Ground-colour pinkish stone-colour; heavily spotted, streaked, and blotched, chiefly at the larger end, with very dark brown and purplish-black markings, which form a complete zone round the thick end. Beneath the heavy blotches are underlying markings of lavender-grey, and faint streaks are spread irregularly over each egg.

The measurements of this clutch are:—

23 × 18·5; 22·5 × 17·25; 22 × 18; and 22·5 × 18 mm.

Another clutch was taken at Firgas in Gran Canaria, 28. iv. 13.

Calandrella minor polatzeki. Polatzek's Short-toed Lark.

Calandrella minor polatzeki Hart.; Bannerman, Part I. pp. 43, 44, 45, 46, 49, 50, 52, 53, 54, 56, 58, 59.

The young of this desert Lark is easily distinguished in life from the adult by the much lighter sand-coloured plumage, and by the light buff tips to the feathers of the head, mantle, and back. The secondaries are very broadly edged with sandy-buff and there is a conspicuous narrow inner margin of deep sepia-brown; this contrasts strongly with the lighter brown colour of the rest of the feather, the shaft of which is also dark sepia-brown. The crest is much shorter in the immature birds than in the adults. In nestlings the upper parts have a spotted appearance caused by the deep brown centres to the feathers of the crown and back which are tipped with buff.

* A very complete description of the seasonal changes of this desert Lark is given by Herr Polatzek (*Orn. Jahrb.* 1908, p. 193).

Polatzek's Short-toed Lark is one of the commonest birds to be met with in the two large eastern islands, where, however, it is not universally distributed. Wherever there is corn planted, particularly on the higher ground, these little birds are most plentiful. They abound on the central plains of Fuerteventura, but are less common on the west coast. In Lanzarote they were entirely absent from the valley of Haria, but swarmed on the high tableland which we crossed before descending into this valley. In the smaller islets they were entirely absent. During our journey in Fuerteventura and Lanzarote a large number of young birds were noted, and a nest containing young was found at Antigua (Fuerteventura) on May the 15th.

A series was obtained from Fuerteventura and Lanzarote.

Bill light horn-colour; iris dark hazel; feet pale buff.

In a series of 32 eggs of *C. m. polatzeki* procured in Fuerteventura, an extraordinary variation is noticeable in shape and coloration, in which at least three more or less distinct types are recognisable.

The most common type appears to have a ground-colour of creamy-white and to be fairly regularly spotted with pinkish brown or greenish brown, with underlying spots of lavender-grey.

Another type of which I obtained several examples had the ground-colour creamy-white with dense blotches of greenish brown, either forming a complete girdle round the middle of the egg or a zone round the broad end. In many cases underlying blotches of pale purplish grey are present. All the eggs in this class have a distinct yellowish tinge about them.

The third and last distinguishable type, which seems to be the most uncommon, has a ground of stone-colour and is finely speckled with pale greenish grey becoming suffused at the larger end.

The eggs of this subspecies are usually oval and slightly pointed in shape. The measurements of the above series of 32 eggs are: maximum 21.5×14 mm.; minimum 18×14 mm. Two peculiarly shaped specimens measure 19.5×16 and 20×13 mm. respectively.

Anthus berthelotii berthelotii. Berthelot's Pipit.

Anthus berthelotii berthelotii Bolle; Bannerman, Part I. pp. 43, 44, 45, 46, 49, 52, 54, 55, 56, 57, 59, 60, 65, 75, 85, 89.

Anthus berthelotii lanzarotæ Tschusi & Polatzek, Orn. Jahrb. 1908, p. 191.

The Pipit from the eastern Canary Islands has been separated from the bird found on the western islands under the name *Anthus b. lanzarotæ*. I purposely collected a large series from the eastern islands in various plumages to compare with the series I had already obtained of *Anthus b. berthelotii* in Gran Canaria. With the added material in the British Museum I have carefully studied the validity

of this new form. I consider that the reasons for assigning subspecific rank to the Pipit of the eastern islands are far too complex to be upheld; even if the supposed characters were constant. From the large series at my disposal (including birds killed in every month) the characters given appear to be very doubtful, and therefore I unite the Pipits from the eastern group with *Anthus b. berthelotii*.

The form of Berthelot's Pipit inhabiting Madeira and Porto Santo is easily distinguishable from the typical form, a well-marked character being the length of the bill, which for a bird of this size is most pronounced. This has been named by Dr. Hartert *Anthus berthelotii madeirensis*.

Berthelot's Pipit was met with fairly plentifully in most parts of Fuerteventura and Lanzarote. It was also found on the small islands of Graciosa, Montaña Clara, and Allegranza. Many of the birds were in full moult in June. Their habits are too well known to require further mention here.

A large series was collected from Fuerteventura, Lanzarote, Graciosa, Montaña Clara, and Allegranza.

Bill light horn-colour; iris dark hazel; feet pale buff.

The following clutches of eggs were secured:—

(a) 5 eggs, Yaiza, Lanzarote. 22. v. 13.

(b) 4 eggs (2 broken), Haria, Lanzarote. 26. v. 13.

Ground-colour greyish stone-colour, minutely freckled with different shades of brown, greenish grey and lavender-grey with occasional hair-streaks generally towards the thick end. Apart from various degrees of stone-colour there is very little variation in the eggs which I have seen from the eastern Canary Islands. I have never come across any similar to those described in the 'Catalogue of Birds' Eggs' in the British Museum, from clutches obtained by Capt. Savile Reid. These eggs, which were taken in Tenerife by the above mentioned extremely careful collector, closely resemble those laid by *Calandrella minor rufescens*.

The following are the measurements of the eggs obtained:—

Clutch (a) 20 × 15, 19.5 × 14.5, 20 × 14.5 (3 eggs);

„ (b) 21 × 15, 20.5 × 14.5 (2 eggs broken).

Parus cæruleus degener. Pale Blue Titmouse.

Parus cæruleus degener Hart.; Bannerman, Part I. pp. 47, 60.

The young in first plumage have the back greyish green, the underparts are paler throughout than in the adult and they lack any white on the head. The parts which in the adult are white, in the young bird are dull yellow. The black throat is also wanting in juvenile specimens.

The Pale Titmouse is confined to the islands of Fuerteventura and Lanzarote, in both of which it is very locally distributed. In Fuerteventura we met with it for the first time in the Tamarisk valley of La Peña, where both adult and immature birds were common. This was the only occasion upon which we met with *Parus c. degener* in this island. It occurs, however, in several districts, particularly where cactus abounds, and it is also very partial to fig plantations.

In Lanzarote the range of this species is equally narrow, being restricted to the valley of Haria and immediate neighbourhood, where it is very plentiful. Mr. Meade-Waldo found a nest containing young on El Risco on the 8th of April. We were apparently too late in the year to find the eggs ourselves.

A series was obtained from Fuerteventura and Lanzarote. Bill dark horn; iris dark hazel; feet slate-colour.

Lanius excubitor kœnigi. Kœnig's Grey Shrike.

Lanius excubitor kœnigi Hart.; Bannerman, Part I. pp. 43, 44, 46, 48, 49, 50, 53, 54, 57, 60, 65, 89.

The series of this Shrike which I obtained shows the bird in different stages of moult; many of the birds are in very worn plumage, the primaries being quite brown. Several examples have a very sandy appearance, caused in most cases by the bird moulting out of the immature plumage into the grey of the adult. I did not notice any birds in the complete sand-coloured plumage in which Mr. Meade-Waldo found one or two.

Examples of Kœnig's Grey Shrike were found in

Fuerteventura, Lanzarote and Graciosa, where they are evenly distributed over the greater part of the islands.

Bill black; iris dark hazel; feet black.

Phylloscopus collybita exsul. Lanzarote Chiffcha[†].

Phylloscopus collybita exsul Hart.; Bannerman, Part I. p. 60.

At the time of my visit to Lanzarote I was not aware that Dr. Hartert had separated and named the Lanzarote Chiffchaff. On comparing the examples obtained with my specimens from Gran Canaria of *P. c. canariensis*, I was at once struck with the difference which existed in colour between these two island forms. The wing formula, however, appears to be similar to that of *P. c. canariensis*.

Dr. Hartert has kindly sent me a small series of this Chiffchaff from the Tring Museum. It is distinguished from *P. c. canariensis* by its somewhat smaller size, somewhat lighter, less olive-brown upperside, and less red, more fawn-yellow underside. The under wing-coverts are a paler shade of yellow.

The Lanzarote Chiffchaff was not met with until we reached the valley of Haria, where, however, only three or four birds were heard. They are resident in this district throughout the year according to Polatzek, who took two nests. This ornithologist, who spent a considerable time in Lanzarote, found them much more plentiful in the Haria district than I did myself; he also discovered them at Mal Pais.

This Chiffchaff has not yet been found in Fuerteventura or in any of the smaller islets.

Examples were obtained from Lanzarote.

Bill dark horn-colour; iris dark hazel; legs and feet very dark brown in one specimen, greenish brown in the other, soles yellow.

Sylvia melanocephala leucogastra. Canarian Black-headed Warbler.

Sylvia m. leucogastra Ledru; Bannerman, Part I. p. 47; Sassi, Orn. Jahrb. 1908, p. 34.

Dr. Sassi, who compared a series of the Sardinian Warbler from the Canary Islands with a series from the typical locality, came to the conclusion that specimens from Canary could not be distinguished from European examples. Dr. Sassi, however, on his own statement only compared males, which, as I pointed out in my paper on the Birds of Gran Canaria ('Ibis,' 1912, p. 601), very closely approached *Sylvia m. melanocephala* Gm., but a much greater difference is exhibited by the females. An examination of hens from the Canary Islands and from Sardinia will, I think, show clearly that the two races must be kept apart.

This geographical race of the Sardinian Warbler is by no means rare in Fuerteventura, though necessarily rather local in its distribution, being practically confined to the places where tamarisks flourish. We first met with it in the barranco de la Peña (Part I. Pl. III. fig. 1) on the west coast, where it was fairly plentiful; it must also be found in the dry valley of Gran Tarajal on the east coast. Herr von Thanner met with it in the district known as Rio de las Palmas and also at Antigua, where, however, I did not see it. It had finished breeding in Fuerteventura, several empty nests being found in the tamarisk bushes.

We did not come across this Warbler in Lanzarote or any of the smaller islands; Polatzek, however, mentions the bird from Lanzarote.

A small series was obtained from Fuerteventura.

Bill dark blackish horn-colour, lower mandible whitish at the base; iris light hazel, eyelids brilliant reddish orange; feet ochreous yellow.

Sylvia conspicillata bella. Canarian Spectacled Warbler.

Sylvia conspicillata bella Tschusi; Bannerman, Part I. pp. 60, 65, 85, 89.

In Fuerteventura we only saw this little Warbler in the north of the island on one occasion. In the south we met with it again in the barranco of Gran Tarajal. It is said by von Thanner to appear everywhere but not to be very

numerous. Polatzek notes that he seldom saw it in Fuerteventura. We next came across this bird in Lanzarote, where it frequented the valley of Haria, but it was even more plentiful on Graciosa. This was the only small island upon which we found it.

A small series was procured from Fuerteventura, Lanzarote, and Graciosa.

Bill light horn-colour; iris light brown; feet deep buff.

Saxicola dacotiae dacotiae. Fuerteventuran Stonechat.

Saxicola dacotiae dacotiae Meade-Waldo; Bannerman, Part I. pp. 43, 44, 47, 48, 52, 89.

The local range of this Chat appears to have increased considerably in Fuerteventura since Mr. Meade-Waldo discovered it in 1888.

It may be of interest to summarise the observations of naturalists who have visited Fuerteventura, on the distribution of this Chat so far as it has been at present observed.

1888. Discovered near Tuineje by Mr. E. G. B. Meade-Waldo.

1889. Meade-Waldo found it again between Pozo Negro and Tuineje; a few seen in the mountains near Tuineje, probably in the direction of Catalina Garcia, two pairs seen in a small mountain barranco where there was a little scrub. Later a pair was found on the beach at Gran Tarajal. Meade-Waldo notes in his diary that the Chats seem very rare.

1902 } Herr Polatzek, who spent three and a half years amongst the
1903 } islands, chiefly I believe in Fuerteventura, found them in the
1904 } barranco de Rio Cabras (Valle de la Laguna), and in other
1905 } ravines on the *eastern* side of the island. They were also met
with in a small valley near Casillas del Angel and in the district round Oliva. Polatzek remarks that it is possible to go a long way without meeting with any and that he *never* found them on the western side of the island; he suggests, as a reason for their absence from the western coasts, that in strong winds they struggle heavily and have much difficulty in flying.

1904 } Herr von Thanner, who has made several collecting trips to this
1905 } island, thought that the breeding range of this species was
1910 } spreading, but remarks that these Chats are often confined to
1912 } very narrow places. He appears to have found them especially in the low valleys which lose themselves towards the east and south-east coasts. They were also seen in the neighbourhood of

Oliva, and were met with in the north of the island in all places favourable to them, even in the interior. In 1905 he found them at Rio de las Palmas. This is the first mention of this species west of the central range of hills.

1913. In the route which I followed [*vide* Map, in Part I. Pl. II.], starting from Puerto Cabras and crossing to Toston on the north-west coast, we first met with these Chats between Caldereta and Oliva, several being seen there. We next found them in the Tamarisk valley of La Peña [*vide* Part I. Pl. III. fig. 1], and particularly towards the upper part of this barranco [*vide* Part I. Pl. IV. fig. 1]. In this dried-up water-course *Saxicola d. dacotiæ* was plentiful, but once the ascent to Betancuria had begun we saw no more of the Chats until we had crossed the dividing range and gained the plains. At Antigua I saw single young bird which had evidently been reared in the neighbourhood. None were seen near Puerto Cabras, but we again noticed them near the beach at Gran Tarajal.

From these notes it will be seen that these interesting Chats are now pretty well distributed over the island, but curiously enough they have, so far as we know, never yet crossed the dividing strait to Lanzarote. There is almost always a strong breeze blowing in the eastern islands, and as these small birds find such difficulty in battling with the wind, it is probable that this is the chief factor in confining their distribution to the one island. For some account of their habits see Part I. of this paper, pp. 47-8.

A good series was obtained from various parts of Fuerteventura.

Bill black ; iris dark hazel ; feet dark brown.

Saxicola dacotiæ murielæ. Muriel's Chat.

Saxicola dacotiæ murielæ Bannerman, Bull. B. O. C. vol. xxxiii. 1913, p. 37 ; id. Part I. Pl. IV. & pp. 74, 75, 76, 77, 84, 86.

This Chat is confined to the outlying islets of Montaña Clara and Allegranza. A full description and account of this interesting new subspecies is given in Part I. of this paper (*vide supra*).

A series was obtained in Montaña Clara and Allegranza showing several stages of plumage.

Bill black ; iris dark hazel ; legs black.

Hirundo rustica rustica. Swallow.

Hirundo rustica rustica Linn.; Bannerman, Part I. pp. 49, 86.

Swallows were seen on rare occasions only; they were first met with at La Peña on the west coast of Fuerteventura, where several were hawking over the fields of corn and maize. They do not breed in the islands but are seen annually on migration. At this time of year (May and June) they are fairly common in Gran Canaria.

A specimen was obtained in Fuerteventura.

Bill black; iris dark hazel; feet dark brown; the body was very fat; the testes small.

Delichon urbica urbica. House Martin.

Delichon urbica urbica (Linn.); Bannerman, Part I. pp. 55, 77, 86.

House Martins were not seen in Fuerteventura, but were almost the first species noted upon our landing in Lanzarote. A pair was flying over the small port of Tiñosa and one was obtained. It proved to belong to the European species and not, as I thought possible, to the smaller form *D. u. meridionalis* of north-west Africa. In the north of this island they were not seen, but a single bird was noticed flying high over the cliffs of Montaña Clara.

In Allegranza a small colony of Martins was discovered by my taxidermist; they are said to breed in the island, and certainly the birds were seen entering holes in the face of the cliff; unfortunately they were all inaccessible. Bishop estimated their numbers at about twenty birds. It is worthy of note that on a subsequent visit to this part of the island all signs of the House Martins had disappeared. Dr. Hartert (Vög. pal. Faun. i. p. 808) remarks that he considers the statement that the House Martin has bred in the Canary Islands rests on an error, and until more definite evidence is forthcoming I am inclined to agree with him. It certainly does not breed on Tenerife or Gran Canaria.

Examples were obtained from Lanzarote and Allegranza.

Bill black; iris dark hazel; legs feathered, claws dusky.

Micropus murinus brehmorum. Pale Swift.

Micropus murinus brehmorum Hart.; Bannerman, Part I. pp. 49, 51, 52, 53, 55, 56, 61, 77, 86, 88.

All the Swifts which we collected appeared to have extremely white throats. The Pale Swift is a migrant to the eastern Canary Islands, arriving, according to Polatzek, at the end of February and departing in September. This observer records it only as a bird of passage in Lanzarote but found it breeding in Fuerteventura, where Meade-Waldo also discovered a colony. I found these Swifts to be plentiful in the eastern group during May and June, but particularly so in Fuerteventura. Here, in the neighbourhood of Puerto Cabras, they were seen in numbers hawking over the plains; they were also met with throughout our journey in the island, being especially numerous at Toston, in the valley of La Peña, and at Antigua. I did not myself find any nests, but Swifts doubtless still breed plentifully in this island.

In Lanzarote they were much less common, and were only seen in any numbers at Tiñosa and once over the town of Haria. Single birds were noticed from time to time at various points on the route. They were not seen in Graciosa, but they were found on both the small islands of Montaña Clara and Allegranza, in the former of which they appeared to be breeding in the cliffs.

A series was obtained from Fuerteventura, Lanzarote, Montaña Clara, and Allegranza.

Bill black; iris dark hazel; feet purplish brown.

Micropus unicolor unicolor. Madeiran Black Swift.

Micropus unicolor unicolor (Jard.); Bannerman, Part I. pp. 49, 53, 88.

This little Swift was seen on several occasions in Fuerteventura, where it was not nearly so plentiful as the preceding species, being, in fact, quite rare. A few were recognised hawking with *M. m. brehmorum*, over the plains near Puerto Cabras in Fuerteventura. In Lanzarote they were not seen, but I should be much surprised if they do not nest in the

high cliffs below Monte Famara and on the precipice known as El Risco. Curiously enough, it was *M. m. brehmorum* and not this species which we found on the small islets. Undoubtedly the Black Swift breeds on the western islands, as on May the 1st I shot a specimen in Gran Canaria with well-developed eggs in the ovary. There is no reason why this bird should not breed in the eastern group, but up to the present there are no actual records of its having done so.

Several examples were obtained from Fuerteventura.

Bill black; iris dark hazel; feet purplish brown, rather more pink than in *M. m. brehmorum*.

Upupa epops epops. Hoopoe.

Upupa e. epops Linn.; Bannerman, Part I. pp. 43, 44, 46, 49, 50, 51, 52, 53, 54, 57, 59, 60, 65, 86.

Upupa epops pallida Erl.; Floericke, A. d. Heimat d. Kanarienvög. 1905, p. 32.

Upupa epops petrosa } Floericke, A. d. Heimat d. Kana-
Upupa epops pulchra } rienvög. 1905, p. 32.

Upupa epops fuerteventuræ Polatzek, Orn. Jahrb. 1903, p. 166.

The unfortunate Hoopoes found in the Canary Islands have been "split up" into a regular army of subspecies, as can be seen by the formidable list above! No species has been more confused, and the indiscriminate naming and splitting up of a bird of such migratory habits on the most meagre evidence is to be sincerely deplored.

I had, previously to setting out on my last expedition and while working on the "Birds of Gran Canaria," attempted to discriminate between the alleged forms without success. While in the eastern islands, therefore, I paid special attention to the Hoopoes, and collected examples from every locality visited in Fuerteventura and Lanzarote. With a series of twenty specimens obtained by myself in Gran Canaria and the eastern islands, together with a much larger number acquired from other sources, I have had ample material with which to thoroughly study the question.

Apparently Floericke is responsible for a good deal of the confusion which has arisen in the past with regard to the Hoopoe of the Canary Islands. In 1905 he described and named two new subspecies from Tenerife and Gran Canaria alone, besides apparently recognising *U. e. epops* and *U. e. pallida* Erl. as birds of passage occurring in the same islands! These forms he named (1) *U. e. petrosa*, and (2) *U. e. pulchra*.

Later Polatzek, turning his attention only to the Hoopoes from the eastern islands, recognised two forms: (a) From Fuerteventura, which he described and named *U. e. fuerteventuræ*, and (b) from Lanzarote, which he described but did *not* name, but which Thanner suggests should be named *U. e. lanzarotæ*. Polatzek also recognises *U. e. epops* from all the islands of the group.

We have, therefore, the astonishing number of six supposed distinct forms of *Upupa* in the Archipelago!

To deal first with the subspecies described by Floericke, form 1 may be dismissed as quite unworthy of consideration. Form 2, *U. e. pulchra*, is said to be "long-beaked, short-winged, and to be a bird of passage."

Form a, of Polatzek, named *U. e. fuerteventuræ*, is said to be distinguished from European and African examples by (1) its more vivid colouring, (2) its long beak, and (3) by its being a resident bird. Moreover, it is said to be a large species and to be a winter-breeding bird.

Von Thanner, who has paid special attention to this question, is much more moderate in his conclusions than either of the above-mentioned. This observer, who should be well acquainted with the Hoopoe in all the islands, recognises two forms, the typical *Upupa e. epops* and *Upupa e. pulchra* Floericke, with which he considers *U. e. fuerteventuræ* Polatzek to be synonymous. In this latter conclusion I do not agree with him, for one reason Polatzek notes that *U. e. fuerteventuræ* is a large bird, while *U. e. pulchra* is said to be "short-winged."

It will be seen therefore that both Polatzek and

von Thanner believe that the bird, which undoubtedly breeds in the winter months in Fuerteventura and on the coasts of Gran Canaria and Tenerife, is separable from the typical race.

A careful survey of the material before me led me at first to believe that Polatzek and von Thanner were right in this deduction. At first sight there certainly appeared to be two forms represented. Out of 20 birds collected in Tenerife, Gran Canaria, and the eastern islands in February, March, April, and May, eight specimens had the plumage of the upper parts distinctly more vinaceous than the remainder, with bills measuring 52-62 mm., collected in the same islands in the same four months of the year. The remaining twelve examples are much "duller" in general colouring, and their bills measure 52-60 mm., but the average length is distinctly shorter than in the first eight bright-coloured birds. Now is it possible that two perfectly distinct forms of *Upupa* should be found side by side in the same four islands at the same time of year, both of which breed in the islands, and in the eastern group at any rate are found living under exactly the same conditions? Personally, I do not consider it possible, and until very much more convincing arguments are forthcoming in favour of two distinct races in the Archipelago, I prefer to class all the Hoopoes under the one head—*Upupa epops epops* Linn. The bright colouring of the plumage exhibited in certain birds I consider to be largely seasonal. An examination of a large series of *U. e. epops* from other parts of the world shows that they are subject to great variation in colour as well as, to a certain extent, in the length of the bill, which latter discrepancy may possibly be accounted for by age. It would be interesting to learn the opinions on this subject of the several eminent foreign Ornithologists who have recently been working on the Avifauna of the Canary Islands.

The migrations of the Hoopoe in the Canary Archipelago are not very clearly understood, but it seems fairly evident that in the eastern islands some Hoopoes remain throughout

the year* and undoubtedly breed in the winter months (*cf.* Polatzek, *Orn. Jahrb.* 1908, p. 166, form *a*, which he calls *U. e. fuerteventuræ*). These resident birds are reinforced by large numbers from the African mainland in the spring. Polatzek has himself seen migrants arriving on the 29th March, but considers them to be a distinct race which, however, he does not name. These migrants I consider were *U. e. epops*, which in my opinion arrive in March and April, while the majority leave the islands in the autumn. A few remain through the winter, and owing to the mild climate on the low-lying eastern islands and on the coast of the mountainous western islands, breed in February and March.

Hoopoes were met with in every part of Fuerteventura and Lanzarote which we visited. They are almost the commonest birds to be seen, alike on the stony plains, in the villages, amongst cactus plantations, in the tamarisk valleys, in the hills, or on the coast.

In Graciosa, only one bird was seen, as also in Allegranza; both these were very wild—in this respect unlike those generally met with on the large islands, which showed no sign of fear.

We did not find any Hoopoes on Montaña Clara.

A nest, which was found on May the 15th at Antigua (Fuerteventura), contained five half-fledged young, between the largest and smallest of which an enormous difference in size existed. We kept them alive for some time and found that they thrive well on roasted gofio, and later on butterflies and caterpillars, which they ate greedily. I regret that they died one by one about a week after their return to Gran Canaria; they had meanwhile become exceedingly tame. This family is now in the British Museum.

A series was obtained from Fuerteventura and Lanzarote.

Bill dark horn; iris dark hazel; feet greyish brown.

* Von Thanner considers that the majority of winter-breeding birds leave the islands after nesting is finished. Polatzek, on the contrary, thought that this winter-breeding bird was resident, at any rate in the eastern group.

Tyto flammea gracilirostris. Slender-billed Barn-Owl.

Tyto f. gracilirostris Hartert ; Bannerman, Part I. pp. 61, 62, 84, 86.

The Eastern Canary Island Barn-Owl is an exceedingly rare species found on the islands of Fuerteventura, Lanzarote, and Allegranza.

The example from the last-named island is very dark in colouring, but in other respects is similar to those from the main islands, and it must be remembered that considerable variation in colour exists individually amongst the whole group of *Tyto flammea*. It is always a difficult question to determine how plentiful or otherwise birds such as this may be. Nocturnal species are usually credited with being "very rare" on account of their being so seldom met with in broad daylight! In the case of this particular species, however, I believe the report to be correct. In every village which we passed through I made diligent enquiries after Owls. The islanders all appeared to know the "Lechusa," as this species is called, but one and all affirmed that it was now much scarcer than in former years.

Specimens were obtained from Lanzarote and Allegranza.

Bill light horn-colour ; iris black ; feet dark buff, claws black.

Falco peregrinus pelegrinoides. Barbary Falcon.

Falco p. pelegrinoides Temm ; Bannerman, Part I. pp. 58, 61, 62, 77, 78, 82, ? 83.

Falco peregrinus pelegrinoides, Hartert, Vög. pa!. Faun. ii. p. 1051.

This grand bird—the *Falco barbarus* of former writers on the Canaries—was not seen until we reached Montaña Clara. On this little island a pair was resident, and the birds were seen on several occasions (*vide* Part I. pp. 77-78). I again saw a single bird on the Roque del Oeste, which, however, was probably one of the pair from Montaña Clara. On my return journey through Lanzarote I procured a fine specimen which had been shot while chasing the tame

pigeons in the little township of San Miguel de Teguisse, situated in the heart of the island.

An example was obtained from Lanzarote.

The soft parts were faded.

Falco eleonoræ. Eleonore Falcon.

Falco eleonoræ Gené ; Bannerman, Part I. pp. 55, 56, 61, 62, 89.

This bird was seen on two or three occasions during the trip. It was first noted in Lanzarote, where I obtained a fine example of an adult male which had been shot near Arrecife. It was probably a Falcon of this species which was seen twice on the way from Tiñosa to Yaiza. It is not a common bird but, according to Polatzek, at certain seasons of the year and in certain localities, it is sometimes fairly plentiful. I had a good view of one of these Falcons in the barranco of Gran Tarajal in Fuerteventura. June seems a very early month in which to find this Falcon in the Canary Islands. It is a regular migrant in August and September. Von Thanner records it as breeding on the Roque del Este. Certainly it was not this species which I saw on Montaña Clara, but *F. p. pelegrinoides*. Very probably both species frequent this deserted island.

An example was obtained in Lanzarote.

Tinnunculus tinnunculus dacotiæ. Fuerteventuran Kestrel.

Tinnunculus t. dacotiæ (Hartert) ; Bannerman, Part I. pp. 43, 49, 50, 53, 55, 56, 57, 61, 65, 78, 82, 86, 87, 88.

Falco tinnunculus dacotiæ Hartert, Vög. pal. Faun. ii. 1913, p. 1086.

Dr. Hartert recently described this Kestrel in his book on the 'Birds of the Palearctic Fauna.' It may be as well to give here a short summary of the characters which distinguish *T. t. dacotiæ* from *T. t. canariensis*.

In a series of 14 birds from the eastern Canary Islands (7 ♂, 7 ♀) compared with 14 birds from the western group (8 ♂, 6 ♀) we see that the adult males of *T. t. dacotiæ* have the spots on the mantle and wing-coverts smaller than

in male examples of *T. t. canariensis*, while in the latter species the spots almost appear as bars. In comparing females of the two races we find that *T. t. canariensis* is considerably more heavily barred on the entire upper parts and has a generally darker appearance than *T. t. dacotiæ*. In size *T. t. dacotiæ* is smaller, as can be seen by the appended wing-measurements :—

<i>T. t. dacotiæ.</i>	<i>T. t. canariensis.</i>	<i>T. t. dacotiæ.</i>	<i>T. t. canariensis.</i>
♂.	♂.	♀.	♀.
226 mm.	234 mm.	228 mm.	235 mm.
223 "	223 "	235 "	243 "
215 "	221 "	233 "	236 "
215 "	224 "	228 "	237 "
218 "	226 "	223 "	244 "
224 "	223 "	231 "	232 "
221 "	222 "	225 "	
	234 "		

I had myself collected a large series in the eastern islands, as I had suspected before leaving England that the form found in the desert eastern group could be separated from that found in the western islands. That my supposition was correct is proved by my finding on my return that Dr. Hartert had already described and named this geographical race, while engaged upon working through the Kestrels of the Palæarctic region for his book. The characters assigned to this subspecies are fully borne out by the series which I procured. While in the eastern Canary Islands I paid special attention to immature birds, and managed to secure examples of this Kestrel in almost every plumage, from the nestling in down to the fully adult bird. It is impossible to give a full description of the various phases of plumage which the young bird passes through, but it is evident that the down is cast last of all from the inner wing coverts and from the crown of the head. Anyone desiring further information on this point can examine the birds themselves, of which a complete set are now to be found in the National Collection.

The following immature specimens were procured:—

(a) 1 nestling in down, taken at La Peña (Fuerteventura) on May the 11th.

(b) 3 nestlings in down, taken on Isla Graciosa on June the 7th.

(c) 3 juv. partly in down, taken at Haria (Lanzarote), on June the 15th.

(d) 1 juv. in a still further advanced stage, taken at La Peña (Fuerteventura) on May the 12th.

The Fuerteventuran Kestrel is not confined to the island after which it has been named, but was met with in every one of the eastern group which we visited, even being seen on the Roque Inferno or West Rock. In Fuerteventura it is not really a very plentiful species, and in comparison with the numbers of *T. t. canariensis* in Gran Canaria, where it simply swarms, it may be termed almost scarce. It is, however, seen in or near almost every village, and a clump of palm trees is almost sure to attract one or more pairs. I therefore came to the conclusion that it was regularly but sparingly distributed over the island. Almost all the birds met with in Fuerteventura were rearing young at the time of my visit, and in consequence I only shot two adult examples there which I had reason to believe had finished breeding.

In Lanzarote, curiously enough, these Kestrels were much more abundant. The increase in their numbers was most apparent, and many young birds were seen on the wing. In the desolate country between Yaiza and the coast many Kestrels were noted, and they were equally plentiful in the cultivated district round Uga. We did not find them in anything like the numbers in which Kestrels appear in Gran Canaria until we reached the valley of Haria. Here for the first time they were really plentiful—as Hawks go—and on one occasion I watched nine birds hovering over a single field.

On the island of Graciosa Kestrels were fairly numerous—they breed on the western coast. On Montaña Clara only a very few were noticed, but on Allegranza they were quite common and are evidently resident there.

A large series was obtained from Fuerteventura, Lanzarote, Graciosa, and Allegranza.

Adult. Bill bluish horn, cere pale yellow ; iris dark hazel ; feet chrome yellow.

Juv. Bill pale bluish horn ; iris dark hazel ; feet pale yellow, claws black.

Buteo buteo insularum. Canarian Buzzard.

Buteo b. insularum Floericke ; Bannerman, Part I. pp. 50, 60, 65, 84, 86.

Buteo buteo lanzaroteæ Polatzek, Orn. Jahrb. 1903, p. 113.

The Buzzard from the eastern Canary Islands has been distinguished by Polatzek as *B. b. lanzaroteæ*. I have not myself compared a large series of adult birds from the eastern and western groups of the Canary Archipelago. Dr. Hartert, who has recently reviewed the Palæarctic forms, tells me that he does not consider the Buzzard found in the eastern Canary Islands can be separated from *Buteo b. insularum*, the race inhabiting the western islands.

The Buzzard is an exceedingly rare bird in Fuerteventura judging from my own experience, for in the course of the entire journey through this island it was only seen on one occasion—in a barranco between La Peña and Santa Maria de Betancuria. Both Polatzek and von Thanner found it scarce in Fuerteventura. In traversing Lanzarote from the south to the extreme north (see Map of Route, Part I. Plate II.) I did not meet with it until I reached the valley of Haria, where, however, one or two pairs were constantly in sight during the five days spent there.

The little island of Graciosa is now quite forsaken by the Buzzards, which Meade-Waldo found there in April, 1890. None were discovered on Montaña Clara, but on Allegranza it is interesting to note that three or four were seen in one crater, being doubtless resident in the island.

An immature example was procured in Allegranza.

Bill black, cere greenish yellow ; iris light hazel ; feet yellow.

Neophron percnopterus. Egyptian Vulture.

Neophron percnopterus (Linn.); Bannerman, Part I. pp. 44, 50, 56, 58, 61, 66, 78, 87, 89.

The Egyptian Vulture is not nearly so plentiful in the eastern group of the Canary Islands as it is in Gran Canaria or Tenerife. In Fuerteventura and Lanzarote it was sparingly distributed throughout both islands — by “sparingly” I mean that it would be unusual to see more than two or three pairs in a day’s march, while in Gran Canaria it is seldom indeed that two or more birds are not constantly in sight wherever one may happen to travel.

In Graciosa a single bird used to haunt the largest crater. I do not believe that any breed there, the precipitous cliffs known as “El Risco,” on the adjoining island of Lanzarote, proving far more attractive to their requirements.

In Montaña Clara a pair certainly appeared to be resident, on which island the birds had plenty of opportunities of choosing a suitable nesting-site where they would be undisturbed.

The island of Allegranza also possessed a single pair of these Vultures at the time of our visit.

An immature bird was obtained in Fuerteventura.

Bill pale horn-colour; iris dark hazel; feet dirty flesh-colour; head and neck pale chrome.

Pandion haliaëtus haliaëtus. Osprey.

Pandion h. haliaëtus (Linn.); Bannerman, Part I. pp. 61, 66, 78, 82, 86.

The Osprey is often seen round the coasts of all the eastern islands. It breeds in all the members of this group with the possible exception of Graciosa, where, however, it has been known to nest, although there are no high cliffs in this island. A pair was resident on Montaña Clara, and we watched their marvellous evolutions every day. This pair is said to nest on the north-west cliffs of the island (*vide* Part I. Plate III. fig. 2).

When I landed on the West Rock two Ospreys sailed out

from a crevice overhead, but I could not find any remains of a nest on this wave-lashed heap of lava.

In Allegranza the Osprey is resident and breeds on one of the smaller volcanoes.

No specimens were procured.

Ardea cinerea. Common Heron.

Ardea cinerea Linn. ; Bannerman, Part I. pp. 46, 87.

The Common Heron is resident in the Canary Islands, but I do not know whether it breeds anywhere in the eastern group as undoubtedly it does in some of the western islands. I only met with this bird on one occasion, when I surprised a Heron feeding on the reefs at Toston in Fuerteventura. Herons are recorded from both the larger islands.

A single bird was observed on Allegranza.

No specimens were procured.

Phœnicopterus roseus. Flamingo.

Phœnicopterus roseus (Pall.) ; Bannerman, Part I. p. 57.

The Flamingo has almost certainly visited the island of Lanzarote, for the native fishermen living near the Lago Januvio described to me a bird which could only have belonged to this species. Meade-Waldo saw the undoubted remains of one of these birds in the eastern Canary Islands. Other interesting Waders which have occurred in Lanzarote, but which I could hardly hope to meet with in so hurried a journey, are *Platalea l. leucorodia*, *Machetes pugnax*, *Himantopus himantopus*, *Recurvirostra avosetta*, *Limosa limosa*, and *Limosa l. lapponica*, stuffed examples of which were seen in a private collection of Lanzarote birds at Arrecife (*vide* Part I. pp. 62-63).

No specimens were procured.

Thalassidroma pelagica. Storm Petrel.

Thalassidroma pelagica (Linn.) ; Bannerman, Part I. p. 78.

A Storm Petrel was taken by one of my boatmen in a cave in Montaña Clara on the 9th of June. This is the first record of *T. pelagica* being taken *on land* in the Canary Archipelago. The testes of this specimen were very large,

and it appears highly probable that the bird had come ashore to breed. The local name of the Storm Petrel is "Alma Mestre," which probably equally applies to any of the small members of this family. For a further account see reference given above.

The Rev. F. Jourdain has drawn my attention to the fact that there are three eggs in the British Museum from the Tristram collection which were obtained on the "Desertas," off Madeira in the year 1849, probably taken by Dr. Frere. Mr. Jourdain rightly remarks that this is a highly interesting and little-known extension of the recognised breeding-range of this Petrel, and this fact lends colour to my theory that *T. pelagica* was breeding on Montaña Clara.

An example was obtained from Montaña Clara.

Bill black; iris dark hazel; feet black.

Puffinus assimilis baroli. Little Dusky Shearwater.

Puffinus assimilis baroli Bonap.; Bannerman, Part I. pp. 64, 66, 79, 87.

Puffinus baroli Bonaparte, Consp. Gen. Av. 1856, p. 204.

Puffinus obscurus Gm.; Ogilvie-Grant, Ibis, 1890, p. 444.

Puffinus assimilis Gould; Ogilvie-Grant, Ibis, 1896, p. 50; Boyd Alexander, Ibis, 1898, p. 98.

Puffinus obscurus bailloni Bonap.; Rothschild & Hartert, Nov. Zool. vi. 1899, p. 196.

Puffinus bailloni Bonap.; Godman, Mon. Petrels, 1908, p. 138.

Puffinus godmani Allen, Auk, 1908, p. 339.

Puffinus obscurus atlanticus Rothschild & Hartert, Bull. B. O. C. xxvii. 1911, p. 43.

Puffinus assimilis baroli Bonap.; Mathews, Birds of Australia, vol. ii. 1912, p. 54.

Considerable confusion has taken place over the name of the Little Dusky Shearwater inhabiting the Canary Island seas. Old writers on the birds of the Canary Islands, such as Webb and Berthelot ('Ornithologie Canarienne,' 1841), Bolle (J. f. O. 1855), and later Godman (Ibis, 1872, p. 223),

Savile Reid (Ibis, 1888, p. 80), and Meade-Waldo (Ibis, 1890, p. 437; 1893, p. 207) all used for this Shearwater the name of *Puffinus obscurus*, but *P. obscurus* Gm., according to Godman, ranges from the islands of the Pacific Ocean to the Mascarene Islands, and therefore cannot be used for the Atlantic form of this Shearwater.

In 'The Ibis' for 1890, Ogilvie-Grant, writing on the birds obtained at Madæira, Deserta Grande, and Porto Santo, again refers to this Shearwater as *Puffinus obscurus*, although he corrects this statement later in 'The Ibis' for 1896, p. 50, where this and the bird from the Salvage Islands is said to be *Puffinus assimilis* Gould. In this decision he is followed by Boyd Alexander, who designates *Puffinus assimilis* as breeding in the Cape Verde Islands (Ibis, 1898, p. 98). Rothschild and Hartert pointed out (Nov. Zool. 1899, vi. p. 196), that the birds from Madeira are *not* the same as *P. o. assimilis* from the Australian and New Zealand Seas. They therefore adopted (with reserve) the name *Puffinus obscurus bailloni* Bonap., noting, however, that perhaps this Shearwater of the Atlantides required to be renamed. Hartert, however, keeps up this name in the Nov. Zool. 1901, p. 332, and 1905, p. 99.

Godman, in the 'Monograph of the Petrels,' 1908, p. 138, follows Rothschild and Hartert in calling this species *Puffinus bailloni*, but points out that the name *bailloni* was given by Bonaparte to a bird from *Mauritius* ("Isle de France") and therefore becomes synonymous with *Puffinus obscurus* Gm. He does not, however, give a new name to the north-east Atlantic form.

Allen, reviewing Godman's 'Monograph of the Petrels' (Auk, 1908, p. 339), seeing that Godman had noted the differences between the Madeiran and Mauritius Shearwater, named the former *Puffinus godmani* without seeing the specimens. Rothschild and Hartert, having discovered that the north Atlantic bird differed from that from the Seychelles, came back to the question and, ignorant of Allen's action, named the north-east Atlantic bird *Puffinus obscurus*

atlanticus (Bull. B. O. C. xxvii. 1911, p. 43). Recently Mathews, writing on *Puffinus assimilis assimilis* ('Birds of Australia,' vol. ii. p. 54), has shown that Bonaparte named the Shearwater from Madeira and the Canary Islands *Puffinus baroli* (Compt. Rend. xlii. 1856, p. 769; id. Consp. Av. 1856, ii. p. 204) and has thus cleared up the matter satisfactorily*.

Very few *adult* specimens of this Shearwater from the Canary Islands are to be found in collections. It is not therefore possible to critically compare it with examples from the type locality. It has recently been shown that the birds from the Cape Verde Islands are distinct, and it will be interesting to compare a series from the Canary Islands, when such is available, with a series from Madeira.

During the Expedition the Little Dusky Shearwater was met with for the first time on the island of Montaña Clara. A complete account of this bird is given in Part I. of this paper (p. 79).

A series of nestlings was obtained illustrating the way in which the down is cast as the bird advances in age. This was the only island upon which we found them. They are known to the natives by the name of "Tahoce."

A series of this Shearwater was obtained from Montaña Clara.

Bill lead-colour, culmen black; iris dark hazel; back of tarsus, outer toe, and sole black; two inner toes and webs livid flesh-colour, more dusky on the webs.

Two eggs only were procured on the 8th of June.

In comparison with the egg laid by *Bulweria bulweri* that of *P. a. baroli* is decidedly large for the size of the bird.

In colour it is white with practically no gloss; the two eggs measure 48.5 × 33.5 and 49 × 34 mm.

* While on this subject it may be as well to point out that the birds obtained in the Cape Verde Islands by Boyd Alexander (*vide supra*) are *not* of the same species as the Madeira and Canary Island form. Mathews ('Birds of Australia,' vol. ii. p. 70) has named this Shearwater *Puffinus herminieri boydi*.

Puffinus kuhli flavirostris. Yellow-billed Shearwater.

Puffinus k. flavirostris (Gould) ; Bannerman, Part I. pp. 61, 64, 66, 67, 68, 69, 70, 80, 82, 84, 87, et Bull. B. O. C. xxxiii. 1913, pp. 56-57.

A very large series of this Shearwater was obtained, all adult breeding birds. The differences which exist between this and the Mediterranean form *P. k. kuhli* have been clearly set forth by Dr. Hartert and Mr. Ogilvie-Grant (Nov. Zool. 1905, p. 97), and need not be enlarged upon. The following points in the series which I obtained are worthy of note :— It has already been remarked that the sex of this Shearwater can be accurately told when the bird is alive by the size of the bill and tarsus. The following measurements give the relative length of 25 male and 15 female examples :—

Bill, ♂ 53-57 mm.

„ ♀ 50-53·5 (many beaks measure 53 mm., but one example has an abnormally long bill of 55 mm.).

Tarsus, ♂ 56-58·5 mm.

„ ♀ 51-54·5 mm.

Wing, ♂ 337-374 mm.

„ ♀ 344-367 mm.

But more important than the actual length is the relative build of the bill and tarsus, that of the male being much heavier and stouter than that of the female.

For a complete account of the nesting habits, distribution, etc., of this species in the eastern Canary Islands see Part I. p. 66.

The Yellow-billed Shearwater swarmed on all the smaller islets and rocks of the eastern group, but was particularly numerous on Graciosa and Montaña Clara. It also nests, according to the natives, at the foot of El Risco in Lanzarote, but I did not have an opportunity of verifying this statement. In Fuerteventura Polatzek found it breeding “in a crater near the mountains of Oliva about eight kilometres from the sea-coast”; the same observer records a nesting colony “within an hour’s journey to the north-west of Yaiza,” in Lanzarote.

There is also a large colony on the island of Lobos. The natives call this Shearwater “Pardela.”

A large series of birds was obtained from the islands of Graciosa, Montaña Clara, Roque del Oeste, and Allegranza. A description of each of these islands with their various nesting colonies is given in Part I.

Bill pale yellowish horn-colour; iris dark hazel; feet pale flesh-colour, outer toe and webs dusky.

A series of 53 eggs was obtained from the four islands mentioned above between May 28 and June 14.

As this large series offers exceptional opportunities for comparison with the egg of *P. kuhli kuhli*, I have given detailed measurements. When first laid they are pure white in colour; a great variety of shapes are exhibited in the series.

79 × 51, 69·5 × 47, 75 × 46, 78 × 49·5, 75 × 51, 70 × 47·5, 72 × 51, 76 × 50, 72·5 × 50·5, 75 × 49·5, 73·5 × 51, 73 × 52·5, 69·5 × 51, 74 × 50·5, 75 × 50, 70 × 48, 66 × 47, 75·5 × 49, 81 × 48, 77 × 50, 75 × 50, 78·5 × 47, 79 × 50·5, 69 × 49, 82 × 50·5, 78 × 49, 77·5 × 49, 70 × 50, 74 × 49, 75 × 51, 73·5 × 53, 77·5 × 51, 77·5 × 50, 83 × 48, 76 × 48, 73 × 50, 78 × 48, 71 × 49·5, 77 × 47·5, 75 × 49, 74 × 50, 74·5 × 51, 73·5 × 51, 70·5 × 49·5, 74·5 × 47, 78·5 × 50 mm.

Bulweria bulweri. Bulwer's Petrel.

Bulweria bulweri (Jard. & Selby); Bannerman, Part I. pp. 74, 80.

A fine series of adult birds was obtained. It is not possible in the case of this species to tell the sex of the bird from external appearances, as is the case with *P. k. flavirostris*. The most important measurements of the specimens which I obtained are as follows:—

Bill, ♂	20·5-23	mm. (exposed part of culmen).	22	birds	examined.
„	♀	20·5-21	„	4	„
Tarsus, ♂	25·5-28	„	22	„	„
„	♀	26·5-27·5	4	„	„
Wing, ♂	187-205	„ (average of 24 birds—196·5 mm.).			
„	♀	191-200	„ (average 195·5 mm.).		

Bulwer's Petrel resorts in the eastern Canary group to the little island of Montaña Clara to breed (Ibis, 1914, p. 80).

We did not discover it on any of the other outlying islets visited. Notes on the habits of this Petrel are given in Part I. (*vide supra*).

A large series of birds was procured from Montaña Clara.

Bill black; iris dark hazel; feet pale flesh-colour, outer toe and webs dusky.

Eighteen eggs were obtained, pure white in colour with an un glossed surface.

The measurements of 14 of this series are : 45·5 × 33, 42 × 30·5, 44 × 31, 43 × 30, 43 × 32·5, 44 × 31·5, 41·5 × 30, 41·5 × 28·5, 41·5 × 31, 42 × 31, 43 × 31, 42 × 30, 43 × 30·5, 42 × 31 mm.

Puffinus puffinus puffinus (Brünn.). The Manx Shearwater.

Bannerman, Part I. p. 85.

Pelagodroma marina hypoleuca (Webb & Berth.). The North Atlantic Frigate Petrel.

Bannerman, Part I. p. 83.

Oceanodroma castro (Harcourt). The Madeiran Petrel.

Bannerman, Part I. p. 85.

Oceanodroma leucorhoa (Vieill.). Leach's Fork-tailed Petrel.

Although all of the above species are from time to time found in the Canary Island seas, not one of them was met with during the Expedition. In the first part of this paper (for pages see above) I discussed the likelihood of the first three of the above species ever having bred in the Canary Archipelago. I am of opinion that *Puffinus p. puffinus* has ceased to breed in the group, or rather that we cannot now consider it to be a breeding bird until fresh satisfactory evidence is forthcoming.

There is no evidence whatsoever that *Pelagodroma m. hypoleuca* or *Oceanodroma castro* has ever been known to breed on any of the Canary Islands proper. (Both species breed on the Salvage Islands, distant 100 miles from the nearest point.)

As to *Oceanodroma leucorhoa* (Vieill.), we are told by

Herr von Thanner (Orn. Jahrb., 1913, p. 193) that *Thalassidroma leucorrhoa* (Vieill.), the "Alma mestre," according to the fishermen (italics mine) breeds especially on Montaña Clara.

Now unless Herr von Thanner has definite proof in the shape of specimens or eggs, which apparently he has not, that the bird in question is undoubtedly *O. leucorrhoa*, we must not accept the statement of the fishermen. It is very unlikely, although they are often excellent observers, that the fishermen distinguish between such species as *O. leucorrhoa*, *O. oceanicus*, *O. castro*, etc. As a matter of fact, during my stay of seven days on Montaña Clara we did not discover a single specimen of *O. leucorrhoa*. One of my fishermen, however, captured in a cave a small Petrel which he brought to me and called the "Alma mestre" (the same nickname used for *O. leucorrhoa* by Herr von Thanner). This bird was the Common Storm Petrel (*Thalassidroma pelagica* Linn.), which surely proves that the statements of the fisher folk must be carefully verified before being put into print.

Podiceps nigricollis nigricollis. Black-necked Grebe.

Podiceps n. nigricollis Brehm; Bannerman, Part I. p. 57.

While encamped on the shores of the Lago Januvio in Lanzarote, a small flock of Black-necked Grebes visited the lake. They did not remain for long, and none were obtained. A rare migrant to the Canary Islands, very few records of this species are forthcoming. This species has a very wide range extending throughout Africa, so that it is not surprising that it should occasionally visit the Atlantic islands. Records have even been made of its visiting the Azores.

No specimens were obtained.

Columba livia canariensis, subsp. nov. Canarian Rock-Dove.

Columba livia livia Gmelin; Bannerman, Part I. pp. 46, 71, 81, 87, 89.

An examination of a series of Rock-Doves from the Canary Islands has convinced me that we can no longer

unite them with *Columba livia livia*, with which up till now they have been considered identical. In fact, it will be noted that in Part I. of this paper I referred to the Rock-Dove as *C. livia* throughout. I had not then had time to examine the material which is now available, and which has induced me to alter my opinion since I wrote on the Birds of Gran Canaria.

As Rock-Doves more than most birds are susceptible to "wear and tear," it is necessary to have a complete series to deal with; moreover, all over the world they are inclined to mate with domestic "faucy" Pigeons and thus bring in a hybrid strain which eventually ruins the pure breed. This has undoubtedly occurred in the Azores, where a very remarkable race of Rock-Dove is to be found. In the Canary Islands, however, we have a bird, which although showing marked differences from the typical race, does not exhibit any trace of "crossing," and which is remarkably constant in the characters which I have assigned to it. The main differences, which at once catch the eye, are that the Canarian form is decidedly darker than Rock-Doves from Europe or northern Africa, that they are smaller in size than *C. livia livia*, and that they have not the pure white lower back which is so conspicuous a feature in typical examples of the Rock-Dove.

I therefore propose to name the Canarian race *Columba livia canariensis*, subsp. nov.

Type ♀. Cueva de las Ninas, Pinar Pajonal, Gran Canaria, 24. i. 10. [Coll. D. A. Bannerman.]

Culmen 21.5, wing 206, tarsus 29 mm.

Habitat. All the islands of the Canary Archipelago.

Columba l. canariensis differs from *Columba l. livia* in having

1. The colour of the plumage darker throughout; practically no variation is shown in a series of twelve examples.
2. The feathers of the rump light grey; a certain amount of variation takes place, but *C. l. canariensis* never exhibits the broad white rump of typical examples of *C. l. livia*.

3. The size is smaller. In 12 specimens the wing-measurements vary from 200–220 mm., and in 13 examples of *C. l. livia* from the British Islands and southern Europe the wings measure from 217–232 mm.

(When *alive* the birds strike one throughout as being a distinctly smaller race.)

As already mentioned, there is no trace of hybridism in birds from the Canary Islands, and they appear to be a perfectly definable race, of which the characters noted are always constant. *C. l. canariensis* is in my opinion more closely allied to *C. l. schimperi* than to *C. l. livia*.

Columba l. canariensis differs from *C. l. schimperi* from north Africa, south Arabia, and Nubia in having

1. The general colour throughout decidedly darker.
2. The lower back light grey instead of slate-grey.

In size the two subspecies are similar.

Seven birds from the above localities have wing measurements of 198–221 mm.

Specimens from Palestine, *Columba l. palestinae* Zedlitz, have the light upper parts of *C. l. schimperi* but have the lower back *white*, and in size they are apparently slightly smaller.

Mr. Stuart Baker ('Indian Pigeons and Doves,' p. 131) believes that the Indian Blue Rock Pigeon (*Columba livia intermedia*) extends through Persia, Arabia, Egypt and northern Africa as far west as Tunis, and he does not recognise *C. l. schimperi* Bonap. or *C. l. palestinae* Zedlitz. In these conclusions I do not agree with him, as I certainly consider the light north African form is a perfectly distinct subspecies. I have only a few examples from Palestine, but these appear to bear out the characters assigned to this subspecies.

Rock-Doves are found in all the eastern islands of the group; they were generally met with in the region of the coast but in much smaller numbers than in Gran Canaria, where they abound.

In Fuerteventura we first found them inhabiting the sea-cliffs at Toston, where they would come in to roost in the evenings, spending the day on the miserable patches of corn. In the cliffs which fringe the shore from Toston to La Peña hundreds of these birds breed. As in Gran Canaria, they also frequent caves in the interior. In a casual journey across the island very few are met with. The same state of things exists in Lanzarote; their stronghold in this island is the steep precipice, 1500-2000 feet in height, bordering the coast from Monte Famara to Punta Fariones. I did not discover any exceptionally large inland resorts, but doubtless some exist in remote parts of the island. In Graciosa several pairs lived amongst the sand-hills in the north of the island, while on Montaña Clara and Allegranza a very few were noted. In the former island they are evidently considerably harried by the Peregrine Falcons.

A small series was obtained from Fuerteventura, Lanzarote, and Graciosa.

Bill dark horn-colour; iris dark orange-yellow; feet crimson.

Streptopelia turtur turtur. Turtle Dove.

Streptopelia t. turtur (Linn.); Bannerman, Part I. pp. 48, 60.

Summer migrants to the Canary Islands, Turtle Doves were found breeding very plentifully in the fertile barranco de la Peña. They are doubtless found in all such places where there is water and where palm trees and tamarisks are found in which to nest. With the exception of Gran Tarajal this was the only place of the kind which I came across in Fuerteventura, and consequently was the only occasion on which I met with the bird in this island. A nest was found on May the 11th, in La Peña barranco, built in a low tamarisk; it contained two fresh eggs, which measure 30×22 mm.

In Lanzarote none were seen until we reached Haria, when a pair of nestlings were brought to me from a neighbouring village. I did not see any Turtle Doves in the south of Lanzarote, where I expected to meet with them in the

cultivated districts of Yaiza and Uga. If they breed there they are by no means common.

A small series was obtained from Fuerteventura and Lanzarote.

Bill dark horn-colour; iris dark yellow, eyelids reddish; feet crimson.

Note.—It will be noted that the Turtle Doves from the eastern Canary Islands which I found breeding in the barranco de la Peña belong to the typical form *Streptopelia turtur turtur*. While in Gran Canaria I shot, on May the 5th, amongst examples of the above, a single specimen of the Pale Turtle Dove, *Streptopelia turtur arenicola* Hartert, Nov. Zool. i. 1894, p. 42.

This subspecies is found in north-west Africa, and was the only form met with by Dr. Hartert during his recent journey in the Sahara, *vide* Nov. Zool. xviii. 1911, p. 543. The type was originally described from Fao on the Persian Gulf, and its occurrence in the Canary Islands is of special interest.

Pterocles arenarius. Black-bellied Sand-Grouse.

Pterocles arenarius (Pall.); Bannerman, Part I. pp. 43, 49, 51, 52, 54, 88, and 89.

The Sand-Grouse is particularly numerous on the extensive plains above Puerto Cabras, where large numbers were seen. A description of the way in which these sporting birds are shot at their drinking-places is given in Part I. p. 54. In the north of Fuerteventura, where they appear to be very rare, we only met with one small flock between Oliva and Toston; they again became plentiful when the central plains were reached. In the actual neighbourhood of Antigua they did not appear to be as common as they are said to be further south.

None were seen in Lanzarote, and I do not believe the bird is resident in this island; it is entirely absent from the smaller islets.

A small series was obtained from Fuerteventura.

Bill whitish horn-colour; iris almost black; feet greenish brown, scales dirty white.

Two clutches of eggs were obtained : a marked difference existed between them, the one having a totally different ground-colour and markings from the other. Both were obtained in Fuerteventura.

Clutch A. Two eggs brought into camp by boys at Antigua, 15. v. 13.

Clutch B. Two eggs said to have been taken at Tuineje in June ; these contained well-developed chicks.

In clutch A the ground-colour is very pale coffee-colour, the general effect showing a yellowish tinge ; the overlying markings may be described as ill-defined suffused blotches of yellowish-brown and umber-brown. One egg in particular is more heavily marked than the other ; there seems to be no tendency for the markings, which are evenly distributed over the shell, to be gathered round the poles.

In clutch B the ground-colour is creamy white in one egg, pale buff in the other ; each is spotted and speckled unevenly with umber-brown and pale rufous with underlying blotches of stone-colour. In this clutch, as in the former, one egg is more heavily marked than the other.

Measurements of the four eggs are :— 48×32.5 , 44.5×34 , 49.5×32 , 46.5×30.5 mm.

Ædicnemus œdicnemus insularum. Eastern Canary Islands' Thick-knee.

Ædicnemus œ. insularum Sassi, Orn. Jahrb. 1908, p. 32 ; Bannerman, Part I. pp. 44, 58, 61, 71, 84, 87, 89.

When engaged in working out a collection of birds from Gran Canaria I was unable to identify specimens from that island and from Tenerife with Dr. Sassi's description of *Æ. œ. insularum*. During my recent expedition I collected a series of ten birds from the islands of Fuerteventura, Lanzarote, Graciosa, and Allegranza. On comparing this series with examples from the western islands, I saw at once that they were different and that *Æ. œ. insularum* Sassi must be upheld.

The ten examples of *Æ. œ. insularum* which I obtained in the islands mentioned, when compared with typical *Æ. œ.*

ædicnemus, are all slightly more sandy rufescent in the colour of the upper parts ; they are also more heavily streaked on the underparts, but the most pronounced difference is in the size, the wing-measurements varying from 220–232 mm. as against wing-measurements in eight British killed specimens of *Æ. æ. ædicnemus* of 233–250 mm.

Upon examining a series of Thick-knees from the western group it was noticeable that birds from these islands show a marked difference from *Æ. æ. insularum* as well as from *Æ. æ. ædicnemus*.

From *Æ. æ. insularum* they are distinguished by

1. Having the upper parts much darker.
2. By lacking the sandy rufescent tinge.
3. Being lighter on the underside.

From *Æ. æ. ædicnemus* they differ in being

1. Darker on the upper parts (the dark centres to the feathers being broader).
2. Lighter on the underparts (especially in birds from Gran Canaria).
3. Smaller in size.

In my paper on the Birds of Gran Canaria I gave a description of the Thick-knees which I obtained in this island and which were remarkable for their almost pure white underparts, the markings upon the breast and flanks being in consequence much bolder. Other differences are also noted ('Ibis,' 1912, p. 584)*. I therefore propose

* At the time when I wrote this paper I was very doubtful whether birds from Tenerife could be separated from *Æ. æ. ædicnemus*. A single bird shot in Tenerife in December 1887 appears to be very different from the rest of the series. It is very large in size, with a wing-measurement of 250 mm., and in colour is sandy-rufescent. It agrees exactly with examples of *Ædicnemus* in the British Museum from Egypt. Whether these are typical examples I am not prepared to say ; those which I have examined are relatively larger and more rufescent in colouring than British-killed examples of the Thick-knee. It seems probable that the large bird shot in Tenerife by Mr. Meade-Waldo was a migrant from the mainland ; it is not, however, *Æ. æ. saharae*, but may be a central Saharan form (see remarks by Hartert, Nov. Zool. 1913, p. 68).

to name the form inhabiting the western Canary group, *Œdicnemus œdicnemus distinctus*, subsp. nov. Type in the British Museum: ♀ ad. Las Palmas, Gran Canaria, 12. ii. 12. [Coll. D. A. Bannerman.]

Thick-knees (*Œ. œ. insularum*) were met with in all the eastern Canary Islands visited with the exception of Montaña Clara and the East and West Rocks. They were quite common though more often heard than seen, and were breeding in all the islands.

A series was obtained from Fuerteventura, Lanzarote, Graciosa, and Allegranza.

The following clutches of eggs were taken of *Œ. œ. insularum* :—

1. Two eggs, Antigua, Fuerteventura, 15. v. 13.
2. Two eggs, Haria, Lanzarote, 26. v. 13.
3. Two eggs, Haria, Lanzarote, 26. v. 13.
4. One egg, Haria, Lanzarote. Obtained by a native ; no date.
5. Two eggs, Isla Graciosa ; one egg found 3. vi. 13, the other taken from oviduct of a female shot on same date.

The eggs, which in several cases are particularly handsome, vary much in size and markings, the ground-colour being either rich buff or greenish buff ; in no case was an egg found having a very pale-coloured ground.

The measurements of eight of the above eggs are:— 48×37 , 48.5×36 , 52×38 , 35×35.5 , 54×35 , 48.5×37.5 , 50×38 , 53×38 mm.

Cursorius gallicus gallicus. Cream-coloured Courser.

Cursorius g. gallicus (Gmelin) ; Bannerman, Part I. pp. 43, 44, 45, 46, 51, 52, 54, 57, 89.

A series of immature examples was obtained which clearly show the phases of plumage which the Cream-coloured Courser passes through before assuming that of the adult. The first stage which the fully fledged young exhibit is shown by a bird shot on May the 20th, which was in company with

its parents. This specimen has the feathers of the crown, entire upper parts, wing-coverts, scapulars, and rump barred with black. The black line running from behind the eye towards the nape, which is so marked a feature in the adult, is very short and narrow in the young. From above the eyes a broad isabelline band joins its fellow on the nape, which in the adult is pure white. Moreover, there is no trace of the bluish-grey hind-crown, and the underparts are a shade darker in colour than in the adult bird.

The next stage which is reached is seen in a bird (of an earlier brood), shot on May the 16th, which has begun to lose the bars on the feathers of the upper parts, and in consequence has a very patchy appearance. The principal change has taken place on the head, which is several shades lighter than in the younger bird. The black stripe from behind the eye is now more pronounced, and the broad isabelline band from above the eyes to the back of the nape has changed to white. The feathers of the hind-crown are becoming bluish-grey and the concealed black nape-patch is just appearing. The fore part of the crown still retains the speckled appearance of the young, but immediately in front of the grey hind-crown the sandy rufous feathers of the old bird have been assumed. The underparts are similar to the adult.

During my journey in Fuerteventura Coursers were not seen in the numbers which I had expected, but it must be remembered that I did not visit the large plain surrounding Tuineje in the south of the island, where they are said to be more numerous than elsewhere. They were met with on the plains above Puerto Cabras, between Oliva and Toston, and again in the neighbourhood of Antigua, but never in very large numbers.

In Lanzarote they were seen on only two occasions, in the desolate country near Januvio.

None were found on the smaller islets, but von Thanner saw a pair on Graciosa which had doubtless flown over from Lanzarote.

A small series was obtained from Fuerteventura and Lanzarote.

Bill dark horn-colour; iris dark hazel; feet creamy-white.

Two eggs were obtained which had been taken earlier in the year.

In colour they harmonize exactly with the ground upon which they are laid. The specimens obtained in no wise differ from the description given in the 'Catalogue of Eggs,' and measure 35×27 mm.

Glareola pratincola pratincola. Collared Pratincole.

Glareola p. pratincola (Linn.); Bannerman, Part I. pp. 58, 63.

The Collared Pratincole is an occasional wanderer to the shores of the Canary Islands. It is, however, a distinctly rare visitor, at any rate, to the western group. Meade-Waldo records only two during his sojourn in the islands. I am inclined to believe that it is of more regular occurrence in Fuerteventura and Lanzarote, which would naturally be the first land sighted. I met with a pair on the wide plain bounded by the sea outside the town of Arrecife. A very high wind was blowing at the time. Later I saw an example of this species in the possession of Snr. Don Gonzalez y Gonzalez of Arrecife which had been shot close to that town. Herr von Thanner records four of these birds as having been seen outside Arrecife on the 7th of May, 1913, one of which had been shot.

A pair was obtained from Lanzarote.

Bill dark horn-colour, gape orange-red; iris dark hazel; feet greenish brown.

Testes and ovary small. Crop contained beetles.

Hæmatopus niger meadewaldoi. Meade-Waldo's Black Oystercatcher.

Hæmatopus niger meadewaldoi Bannerman, Bull. B. O. C. xxxi. 1913, p. 33; Bannerman, Part I. pp. 45, 46, 71, Plate VI.

Hæmatopus niger Cuv.; Webb & Berthelot, Ornithologie Canarienne, 1841, p. 33.

Hæmatopus niger Temm.; Bolle, J. f. O. 1855, p. 175.

Hæmatopus moquini Bonap.; Bolle, J. f. O. 1857, p. 337; Godman, Ibis, 1872, p. 220; Kœnig, J. f. O. 1890, p. 297; Hartert, Nov. Zool. 1901, p. 332; Thanner, Orn. Jahrb. 1905, p. 64; 1908, p. 213; Polatzek, Orn. Jahrb. 1909, pp. 21, 208.

Hæmatopus capensis Licht.; Meade-Waldo, Ibis, 1889, pp. 13, 508; 1904, p. 437; 1893, p. 204.

Hæmatopus niger Meade-Waldo!; Thanner, Orn. Jahrb. 1913, p. 189.

As I have figured this Oystercatcher in the first part of this paper (Plate VI.), I have thought it advisable to include the short original description which appeared in the 'Bulletin of the British Ornithologists' Club,' especially as it has recently been misquoted in the 'Ornithologische Jahrbuch.'

"*Hæmatopus niger meadewaldoi* Bannerman.

"Similar to *H. niger niger* Temm., but decidedly smaller, particularly as regards the measurement of the wing, but with the culmen conspicuously longer and the tarsus more slender. The basal portion of the inner webs of the primaries is white, forming a large patch, partially concealed by the under wing-coverts. In *H. niger niger* there is scarcely any white at the base of the quills, though the primaries become lighter towards the base"*.

* By referring to Plate VI. it will be seen that in the figure a faint wing-patch is visible, caused by the median portion of the outer webs of the primaries being whitish. At the time when I described this Oystercatcher I had only three birds in the brownish plumage to examine. I therefore hesitated to include this peculiar patch as a regular character. I have since procured myself an adult male example in the full glossy-black breeding-plumage, which is the specimen figured, and, as can be seen in the painting, the patch is most marked. I conclude, therefore, that it is a characteristic of the subspecies described and is not, as I at first believed, due to wear.

The following is a summary of the only four specimens in England :—

	Wing.	Culmen.	Tarsus.
	mm.	mm.	mm.
<i>a.</i> ♀ (type)	250	79	52
<i>b.</i> ♂	259	77	49·2
<i>c.</i> ♀	257	81	52
<i>d.</i> ♂ (figured)	262	72·5	54

a. E. Canary Is., 7. iv. 88, Coll. E. G. B. M.-W. Skin in the British Museum.

b. E. Canary Is., 6. iv. 90, Coll. E. G. B. M.-W. Skin in the Liverpool Museum.

c. E. Canary Is., 6. iv. 90, Coll. E. G. B. M.-W. Skin in the British Museum.

d. E. Canary Is., 1913, Coll. D. A. B. Skin in the Tring Museum.

The average measurements of the typical South African species, *H. niger niger*, are :—Wing: ♂ 285, ♀ 275 ; culmen : ♂ 69, ♀ 71 mm.

In all species of Oystercatcher the male has the culmen somewhat shorter than the female.

The occurrence of this rare Black Oystercatcher in the eastern Canary Islands has been known for many years, as will be seen by reference to the synonymy, it having been mentioned by every writer on the group. Unfortunately very little is known as to its habits in the islands, and how it worked its way up the African coast and finally crossed to the Canary Archipelago and there became resident and modified, is still wrapt in complete mystery. At the present day its nearest ally, *Hæmatopus niger niger* Temm., inhabits the coast and islands of Cape Colony, from which species *Hæmatopus niger meadewaldoi* has become evolved. It has been said that there is a Black Oystercatcher on the coast of Gaboon, but very little evidence of the fact seems to be forthcoming. It is true that an enormous part of the African coast-line is quite unknown, and it would not be surprising to find an allied form whose habitat is yet undiscovered.

Hematopus niger meadewaldoi is, so far as we know, confined to the islands of the eastern Canary group. It is unnecessary to be more explicit as to its particular haunts; suffice it to say that anyone intending to obtain specimens will save himself much time and trouble if he gives up all such ideas at once! Several collectors have in vain tried to shoot the birds, but have invariably returned empty-handed.

Having obtained trustworthy information as to where I might find this bird, I was lucky in meeting with the object of my search at the first attempt. The Black Oystercatcher strikes the observer at once as being an extremely fine bird, its brilliant red bill contrasting strongly with its surroundings as it runs nimbly over the rough ground. It shows little sign of fear, but when alarmed flies strongly, uttering a clear piping note as it takes to flight; the note is repeated three times in quick succession. I could learn nothing as to its breeding habits. No eggs appear ever to have been taken of this rare Oystercatcher.

The soft parts of this bird are as follows:—Iris brilliant red; ophthalmic ring orange-vermilion; bill bright orange-vermilion, becoming yellowish horn-colour at the tip; legs strawberry-pink, nails whitish horn. Testes large.

Ægialitis hiaticula major. The Greater Ringed Plover.

Ægialitis hiaticola major (Seeböhm); Bannerman, Part I. p. 46.

Dr. P. R. Lowe has recently drawn my attention to the fact that Seeböhm described a large race of the Ringed Plover, to which form I believe the examples which I have obtained in the Canary Islands should be referred. Although not one of the specimens which I obtained is fully adult, they all agree perfectly with immature examples of the larger race and not with the typical form.

A few Ringed Plovers were noted on the reefs at Toston in Fuerteventura; they were not met with anywhere else. Those of which I had a close view, all appeared to be of this species, although it is often impossible to distinguish in life between this and the typical form of the Ringed Plover.

That *Ægialitis dubia* undoubtedly occurs in the Canary Islands I have proved by shooting a bird in Gran Canaria on January the 19th, 1910, and the following year two eggs of this species were taken close to Las Palmas (*vide* Bannerman, *Ibis*, 1913, pp. 582-583).

A single example was obtained in Fuerteventura.

Ægialitis alexandrinus alexandrinus. The Kentish Plover.

Ægialitis alexandrinus alexandrinus (Linn.); Bannerman, Part I. pp. 43, 45, 46, 53, 57, 71.

The Kentish Plover is by far the most numerous of all the Charadriidæ. It was found plentifully on every part of the coast which I visited in Fuerteventura, Lanzarote, and Graciosa. It breeds everywhere along the shores, and in Graciosa young birds just able to fly were taken on June the 1st, and freshly laid eggs on June the 6th.

Nobody interferes with these little birds, and in consequence they are exceedingly tame, a marked difference in this respect existing between them and the passing Waders.

A small series was obtained from Fuerteventura and Graciosa.

Bill black ; iris dark hazel ; feet brown ; legs greenish-grey to slate-colour.

The two eggs obtained on June the 1st on Graciosa were similar in colour to the ground upon which they were laid :— Ground-colour pinkish buff, spotted and scrawled with deep black markings, and underlying spots of lavender-grey. They measured 34×24 and 33×23 5 mm.

Squatarola squatarola. The Grey Plover.

Squatarola squatarola (Linn.); Bannerman, Part I. pp. 46, 63, 71.

The Grey Plover was first seen at Toston (Fuerteventura), where a pair of birds in beautiful breeding plumage frequented the reefs for some days.

In Lanzarote I did not meet with any, but in this island a very short time was spent in the vicinity of the coast. The only other occasion on which I came upon the Grey

Plover was in Graciosa, where a small flock was seen on two occasions.

In the private collection which I looked through at Arrecife were several examples of this bird. The owner informed me that *S. squatarola* was a regular winter migrant to Lanzarote. Meade-Waldo records them as regular winter visitors to the eastern islands. I have shot specimens in Gran Canaria in February.

No specimens were obtained.

Arenaria interpres interpres. The Turnstone.

Arenaria interpres interpres (Linn.); Bannerman, Part I. pp. 43, 46, 53, 57, 71.

A very plentiful species in the eastern Canary Islands, Turnstones were found in Fuerteventura, on the rocky coast south of Puerto Cabras, and in large numbers on the reefs at Toston.

In Lanzarote a very large flock frequented the shores of the Lago Januvio.

In Graciosa they were equally plentiful, but none were seen on the rocky coasts of Montaña Clara and Allegrauza.

Several examples were in full breeding plumage. I believe that many remain throughout the year, *i. e.* immature or non-breeding birds.

A small series was obtained in Fuerteventura and Graciosa. Bill dark horn-colour; iris dark hazel; feet reddish orange. In every case the testes were small.

Calidris arenaria arenaria. The Sanderling.

Calidris arenaria arenaria (Linn.); Bannerman, Part I. pp. 46, 63.

We did not meet with Sanderlings in May and June in the eastern islands. They are, however, occasionally numerous on migration, and I have seen many of them in the south of Gran Canaria in February.

A mounted example was seen in Arrecife (Lanzarote) which had been shot near that town.

No specimens were obtained.

Tringa alpina alpina. The Dunlin.

Tringa alpina alpina Linn. ; Bannerman, Part I. pp. 46, 57, 71.

Dunlins were seen sparingly on the reefs at Toston in Fuerteventura, by the Lago Januvio in Lanzarote, and on the island of Graciosa. Whenever met with they were always in very small numbers, never in flocks. One example had assumed breeding plumage and had the testes fairly large. Dunlins do not apparently frequent any particular part of the coast for long, and I do not think any remain in the islands through the summer.

Examples were obtained from Fuerteventura and Lanzarote.

Bill black ; iris dark hazel ; feet dark slate-colour.

Tringa hypoleuca. The Common Sandpiper.

Tringa hypoleuca Linn. ; Bannerman, Part I. p. 46.

A few Common Sandpipers were noticed on the reefs at Toston. In Gran Canaria these birds are, I believe, found all the year round, but I very much doubt if this is the case in the eastern islands, where they probably only touch on migration.

Specimens were obtained from Fuerteventura.

Bill dark horn-colour ; iris dark hazel ; feet pale yellowish grey.

Totanus totanus. The Redshank.

Totanus totanus (Linn.) ; Bannerman, Part I. pp. 46, 63.

A single bird was seen on the Toston reefs in Fuerteventura ; we did not meet with it again.

I saw a mounted example in a collection at Arrecife.

I should imagine the Redshank to be a scarce migrant to the Canary group.

None were obtained during the Expedition.

Totanus nebularius. Greenshank.

Totanus nebularius (Gunner) ; Bannerman, Part I. p. 72.

Limosa lapponica lapponica. Bar-tailed Godwit.

Limosa lapponica lapponica (Linn.) ; Bannerman, Part I. p. 63.

Limosa limosa. Black-tailed Godwit.

Limosa limosa (Linn.) ; Bannerman, Part I. p. 63.

A Greenshank was seen on the island of Graciosa. The other two species were not met with during the Expedition.

Stuffed specimens of both Godwits, which had been shot near Arrecife, were seen in Lanzarote. They occasionally touch the islands on migration.

Numenius arquatus arquatus. The Curlew.

Numenius arquatus arquatus (Linn.) ; Bannerman, Part I. pp. 46, 72.

A Curlew was heard calling on the reefs at Toston in Fuerteventura in the second week in May.

I next flushed four birds on the island of Graciosa early in June. Meade-Waldo often met with them in the eastern islands, but ridicules von Thanner's assertion that the Curlew has bred on the "Matas Blancas" in the south of Fuerteventura.

Numenius phæopus phæopus. The Whimbrel.

Numenius phæopus phæopus (Linn.) ; Bannerman, Part I. pp. 46, 72.

The Whimbrel is a very plentiful species in the eastern Canary Islands in May and June. It was particularly common on the reefs at Toston and on the north-west coast of Graciosa. It is doubtless found in every suitable place round the shores of the larger islands. Von Thanner says that Whimbrels breed on Graciosa.

Examples were obtained from Fuerteventura and Graciosa. Bill dark horn-colour ; iris dark hazel ; feet greenish grey.

Sterna hirundo. The Common Tern.

Sterna hirundo Linn. ; Bannerman, Part I. pp. 63, 72.

Sterna sandvicensis sandvicensis. The Sandwich Tern.

Sterna s. sandvicensis Latham ; Bannerman, Part I. pp. 63, 72.

Both the above species are found at certain times of the year on the coasts of the eastern Canary Islands. In 1841

Sterna s. sandvicensis was found in Fuerteventura and Lanzarote (Webb & Berthelot, Orn. Canarienne, p. 41), while *Sterna hirundo* was said to be sedentary there.

I did not meet with either of the above species during the Expedition. The fishermen, however, knew the "Garajáos" well, although they naturally do not discriminate between the two forms. It is probable that *Sterna hirundo* is the Tern which, according to their statement, visits the islands in the summer when the "Sardinas" are plentiful.

Sterna s. sandvicensis probably is occasionally seen in the winter. I have procured specimens off Gran Canaria in February. In Arrecife (Lanzarote) I saw stuffed examples of both species which had been obtained in the immediate neighbourhood.

No specimens were obtained.

***Sterna minuta* Linn.** The Little Tern.

This Tern is also mentioned by Webb & Berthelot, 'Ornithologie Canarienne,' p. 42, as inhabiting "La partie orientale de l'Archipel Canarien." We did not see any signs of this bird, and could not hear of any having been procured in recent years. It is safe to assume that Terns do not now breed anywhere in the eastern group of islands.

Larus cachinnans. The Yellow-legged Herring-Gull.

Larus cachinnans Pallas ; Bannerman, Part I. pp. 53, 55, 61, 72, 81, 82, 83, 89.

The series which I obtained of this Gull did not show any variation in the colour of the back. All my specimens are uniform light grey on the mantle and wing-coverts.

The Yellow-legged Herring-Gull is a very common resident in the eastern Canary Islands. We met with it on every point of the coast which we visited. In the small islands north of Lanzarote this Gull simply swarms; it is very tame and is not molested by man. On the East Rock, according to the stories of the fishermen, the Gulls suffer a good deal from the persecution of "Falcons," probably *F. p. pelegrinoides*. The isolated Roque del Este

is the only breeding-place of this species which I know of in the eastern islands; here the birds can bring up their young more or less in safety. Fishermen occasionally land there, but in many weathers the rock is quite inaccessible.

A series was obtained from Fuerteventura, Lanzarote, Graciosa, Moñtana Clara, and Allegranza.

Bill deep chrome, tip paler, patch vermilion; iris light lemon-yellow; eyelids orange; feet chrome-yellow.

Testes large or fairly large.

Three eggs were given to me which had been taken on the East Rock some time in April. In colour they do not differ from the usual type of egg laid by this species and measure 70×48 , 65×48 , 73×50 mm.

Larus fuscus affinis. British Lesser Black-backed Gull.

Larus fuscus affinis Reinhardt; Bannerman, Part I. pp. 53, 72.

The Lesser Black-backed Gull was not met with anywhere in the eastern islands during the Expedition. It obviously does not breed on any of the outer islands or rocks, as I once thought might be the case. It may, however, be considered a fairly regular winter visitor, but occasionally birds turn up in the spring and summer months. Thanks to Mr. Witherby's untiring efforts at ringing the young birds, we are learning much more concerning the movements of this and many other species. Mr. Witherby has kindly forwarded to me the following two highly interesting records. The first is that of a Lesser Black-backed Gull, No. 33,912, marked as a nestling on August the 2nd, 1913, at the Farne Islands, Northumberland, which was recovered by the captain of the Tenerife schooner 'Luz,' while he was engaged in fishing off Cape Juby (the nearest point on the African mainland to the Canary Islands) on November the 13th, 1913. The second instance, which is of more recent date, is that of another Lesser Black-backed Gull marked at the Farne Islands, Northumberland, on August the 2nd, 1913, which was shot on the shore of Lanzarote on

January the 5th, 1914. I am much indebted to Mr. H. F. Witherby for allowing me to publish these details.

As already noted (Part I. p. 73), the dark-backed race, *Larus fuscus fuscus*, is a very rare straggler to the Canary Archipelago.

Larus marinus. Greater Black-backed Gull.

Larus marinus Linn.; Bannerman, Part I. p. 85; Webb & Berthelot, Ornithologie Canarienne, 1841, p. 42; Bolle, J. f. O. 1855, p. 177; 1857, p. 341.

Messrs. Webb & Berthelot and Dr. Bolle in their works cited above each mention *Larus marinus* as breeding on the island of Allegranza, where the former assert that it was "assez commun." In those days this Gull was killed on account of its down, which was sold in London as eider-down! Very probably this breeding station was soon completely wiped out. We could not hear of any such Gull being seen in the island or even in the neighbourhood at the present day.

Porzana porzana. The Little Crake.

Porzana porzana (Linn.); Bannerman, Part I. p. 63.

Gallinula porzana Webb & Berthelot, Ornithologie Canarienne, 1841, p. 40.

An example of the Little Crake which had been shot near Arrecife, was given to me in Lanzarote. Webb & Berthelot record a specimen "of this very rare straggler" having been taken in the Canary Islands in March 1829. Other observers have also mentioned the species as appearing occasionally in the islands.

One bird obtained from Lanzarote.

Chlamydotis undulata fuerteventuræ. Fuerteventuran Bustard.

Otis undulata fuerteventuræ Rothsch. & Hart. Nov. Zool. i. 1894, p. 689.

Chlamydotis u. fuerteventuræ Bannerman, Part I. pp. 51, 52, 88, 89.

Mr. Rothschild rightly notes that the Fuerteventuran bird is much darker above and so harmonizes with the dark sunburnt rocks of Fuerteventura, in contrast to the truly sandy-rufous colouring of *O. u. undulata* which agrees so perfectly with the deserts which it inhabits.

This magnificent bird is, I fear, not nearly so plentiful at the present day as when Mr. Meade-Waldo collected in the island. It is evidently considered a great prize by the Spanish sportsmen, and foreign collectors have treated the bird in a most merciless manner. Even in the breeding season it cannot gain any peace, and the Spaniards have an abominable habit of trapping the bird actually on the nest. Unless this interesting Bustard is in some manner protected, at any rate during the breeding season, I am afraid it is in grave danger of extermination. From accounts which I received, I understand that it is more plentiful in the south of the island than in the centre, where I first met with it. It is seen, I believe, only at certain times of the year on the plains in the north of Fuerteventura. I found the bird in two localities, Antigua and Puerto Cabras. In the former district I came across an adult pair and a single male bird. While in the neighbourhood of Puerto Cabras a farmer brought me a very young bird in an interesting plumage, but it had unfortunately been dead two or three days. Bishop managed to save the skin, which is now in the Natural History Museum.

In Lanzarote the Bustard is rarely seen and then only in the south. I did not meet with it in this island. Polatzek gives several instances of his having seen it there.

For further accounts of *C. u. fuerteventuræ*, see papers by Bolle, J. f. O. 1857, p. 334; Meade-Waldo, Ibis, 1889, pp. 11-12 & 506; Polatzek, Orn. Jahrb. 1909, p. 19; and von Thanner, Orn. Jahrb. 1905, p. 62; 1910, p. 227; 1912, p. 221.

A single immature bird procured.

Bill dark horn-colour; iris yellow; feet greenish grey.

The egg of the Fuerteventuran Bustard is perfectly distinct in colour from that usually laid by *C. undulata*

undulata, the ground-colour of three in the British Museum and of the only example obtained by myself being rich buffy brown (Ridgway, Colour Standards, 1912, pl. xl.), and sparingly spotted and blotched with chocolate-brown with pale underlying purplish markings.

Measurements : 65·5 × 45, 62 × 43, 67 × 44, 66 × 43 mm.

Caccabis petrosa kœnigi. Kœnig's Barbary Partridge.

Caccabis petrosa kœnigi Reichw. Orn. Monatsbr. 1899, p. 189.

Caccabis petrosa petrosa (Gmel.); Bannerman, Part I. p. 88.

The Barbary Partridge from the Canary Islands has been separated by Dr. Reichenow from the north African race on the grounds that it is darker and larger. Those which I have examined from the Canary Islands (8 examples) have wing measurements averaging 167 mm. Without exception Barbary Partridges from the Canary Islands are distinctly greyer on the back than African specimens. Those examined were mostly obtained in different months of the year.

We did not meet with the Barbary Partridge in Lanzarote, which is the only island in which it is resident. A few are said still to be found there. In 1890, when Meade-Waldo visited Lanzarote, he shot a specimen on the lava-flow in the north of the island, the only spot upon which it was said to exist.

Coturnix coturnix coturnix. The Migratory Quail.

Coturnix coturnix coturnix (Linn.); Bannerman, Part I. p. 44.

Coturnix coturnix africana. The African Quail.

Coturnix coturnix africana Temm. & Schleg.; Bannerman, Part I. p. 44.

Quails are plentiful in Fuerteventura and Lanzarote, but we did not succeed in shooting any during our visit. The corn, such as it was, was still standing and afforded a certain amount of cover. Many eggs, mostly quite fresh, were brought into camp by natives. Probably both the above named species, which occasionally interbreed, are found there, but as no

specimens were procured this is only conjecture. Likewise I have been unable to determine the exact status of the Quail in the eastern Canary group. It is certain that they are highly migratory, but whether *C. c. coturnix* as well as *C. c. africana* breed in the eastern islands has yet to be proved. Neither Polatzek nor von Thanner distinguish between the two forms. Neither do they remark on the regular migration from Africa, which certainly must take place. Webb & Berthelot were of opinion that migration occurred, but was not general, a certain number of birds departing at the commencement of autumn. For my part I suspect that *C. c. coturnix* arrives in the island to breed, departing again after the summer. *C. c. africana* is almost certain to breed in these islands, but is partially migratory, a very few remaining throughout the year. It is probable that its movements are also regulated to a certain extent by the prevailing weather-conditions. Von Thanner (Orn. Jahrb. 1913, p. 221), describing a visit to Fuerteventura in the spring of 1912, remarks that in consequence of the abundant winter rain the island presented a very different appearance to what it had done in former years, and that Quails which during the *dry years were never seen*, came in great numbers, and their song was heard all over the fields. It is possible that these Quails migrating from Africa would first touch the desert eastern islands, and finding, in consequence of the abundant rainfall, that the islands presented a very different aspect from their usual burnt up appearance, many would be tempted to remain to breed instead of continuing their flight to the western group.

While in Gran Canaria in June I obtained, through the kindness of Mr. T. R. Morgan, four live Quails which had been captured at Firgas. These birds proved to belong to (1) *Coturnix coturnix coturnix*, (2) *Coturnix coturnix africana* × *Coturnix coturnix coturnix*. The latter hybrid very closely approaches *C. c. africana*, but shows faint indication of the black throat and white collar of typical *C. c. coturnix*. The underparts have the rich reddish colouring of the African Quail.

No birds were procured, but a series of 29 eggs was obtained from Fuerteventura and Lanzarote.

Clutches of Quail's eggs were taken at—

- | | |
|-------------------------------|------------|
| 1. Caldereta (Fuerteventura), | 5. v. 13. |
| 2. „ „ | 5. v. 13. |
| 3. La Peña „ | 12. v. 13. |
| 4. Haria (Lanzarote), | 23. v. 13. |
| 5. „ „ | 26. v. 13. |

This series show the usual variety of colouring. As I have no means of ascertaining whether they belong to *C. c. coturnix* or *C. c. africana*, I have not given any measurements or description.

XII.—Description of a strange New Zealand Wood-Hen.

By GREGORY M. MATHEWS and TOM IREDALE.

(Plate XI.)

PROBABLY no small group of birds has been so much discussed as the New Zealand Wood-Hens, and, without exception, the investigators have been compelled to relinquish the problems without any satisfactory solution having been achieved.

The examination of the series available shows at once the reason of an indefinite result, viz., the accumulation of odd unsexed individuals instead of carefully localised sexed series. The restrictions placed upon scientific collectors by the New Zealand Government, coupled with the unrestricted advances made by the enemies of the birds, the felling of bush, etc., suggest that no definite solution will be reached.

In our Reference List ('Ibis,' 1913, pp. 211-214) we were compelled to lump under the name *Gallirallus hectori* (Hutton), the forms of the South Island Wood-Hen previously known as *Ocydromus australis* and *O. hectori*. To anyone acquainted with these birds and at all familiar with the topography of the South Island of New Zealand, such a lumping would savour of the absurd. The most casual